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Research Triangle Park NC 27711

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Analysis of the St. Louis RAMS Ambient Particulate Data

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Volume II: Technical Appendices

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Analysis of the St. Louis RAMS Ambient Particulate Data

Volume II: Technical Appendices

by

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February 1980

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APPENDIX A

1976 ANNUAL AND MONTHLY STATISTICS FOR
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TABLE A.1 1976 ANNUAL AND MONTHLY STATISTICS FOR TSP (MICROGRAMS PER CUB.C METER).

STATION	103	105	106	108	112	115	118	120	122	124
NUMBER	103	109	108	100	109	105	99	103	102	104
ARITH MEAN	95.7	87.8	77.1	80.1	78.9	59.7	65.7	52.6	55.0	52.9
ARITH SD	36.9	33.3	31.6	37.2	51.9	27.5	29.3	20.9	25.7	27.0
MAXIMUM	243.1	202.1	209.3	193.4	483.5	195.9	197.1	144.5	144.8	165.2
2ND HIGHEST	186.9	182.3	199.8	164.6	175.3	136.4	161.9	106.3	127.3	123.3
MINIMUM	29.3	27.7	27.6	23.4	25.4	21.2	18.0	16.3	19.1	13.7
GEO MEAN	88.6	81.8	71.6	71.8	69.0	54.3	60.0	48.0	49.7	47.1
GEO SD	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.6	1.6
JAN NUMBER	8	11	11	10	10	11	8	11	11	11
ARITH MEAN	89.9	73.5	67.0*	52.8	52.2	37.3	44.0	39.7	36.7	34.9
GEO MEAN	85.6	69.2	57.6	50.2	49.3	36.7	43.3	38.5	35.4	31.5
FEB	8	6	3	8	8	7	6	7	6	7
	110.7	108.1	80.7	100.9*	74.9	47.3	66.9	54.5	50.0	41.8
	109.7	103.3	79.9	91.9	70.3	44.6	61.8	51.1	48.0	40.9
MAR	10	11	10	9	10	6	10	11	9	9
	77.8	73.7	64.7	69.9	60.3	41.4	53.8	42.0	37.5	49.5
	73.0	69.4	61.5	64.3	55.0	38.8	50.1	40.3	34.9	47.1
APR	8	9	6	10	9	7	9	8	7	9
	103.6	88.8	69.2	99.4	102.1	61.6	85.0*	57.3	60.8	88.4**
	99.6	86.3	66.6	94.2	94.5	58.1	75.9	55.6	58.5	83.0
MAY	7	7	8	8	9	9	9	9	10	6
	87.5	82.4	71.8	77.2	67.3	59.9	66.6	49.0	56.8	55.6
	75.6	78.3	68.9	71.8	64.2	54.2	62.7	45.2	51.3	51.7
JUN	7	10	8	6	9	8	6	6	8	9
	91.4	88.6	80.6	102.2	81.8	68.8	87.0	59.4	79.1	57.1
	85.0	84.3	77.0	92.6	75.2	65.0	82.6	56.6	73.8	52.9
JUL	9	7	10	4	8	8	9	8	7	7
	102.6	89.1	75.9	80.9	143.1*	75.8	82.8	53.5	54.7	56.8
	101.5	87.1	73.5	79.5	109.9	72.4	77.9	52.3	52.8	50.6
AUG	8	10	9	7	10	10	8	7	10	10
	97.5	105.2**	94.8	81.3	92.3	77.9*	64.8	56.9	64.8	55.3
	89.8	97.7	86.8	74.9	86.2	67.1	62.5	53.0	59.3	51.1
SEP	10	10	10	9	8	10	10	10	9	10
	124.2*	94.4	90.8	88.7**	103.1**	64.1	72.4	60.2	72.4**	61.4
	115.7	91.7	88.9	80.7	95.6	62.5	71.1	57.9	68.3	58.5
OCT	10	9	9	10	9	10	8	8	8	9
	91.8	89.7*	79.7**	83.3	58.5	66.9**	66.4	58.2*	61.3*	54.6*
	81.7	78.0	66.6	67.9	51.7	50.6	64.7	49.4	49.8	44.6
NOV	8	9	9	9	9	9	7	9	8	9
	91.0**	80.1	76.3	71.2	62.1	62.2	60.3**	54.2**	51.1	44.7
	80.9	71.6	69.9	64.8	54.9	56.2	47.3	48.4	47.0	39.3
DEC	10	10	10	10	10	10	9	9	9	8
	79.7	89.5	73.9	65.8	63.9	50.5	42.9	55.7	40.3	35.2
	76.6	82.5	70.7	59.2	59.8	47.4	40.4	53.2	39.4	34.2

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.2 1976 ANNUAL AND MONTHLY STATISTICS FOR IP (MICROGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	275	282	183	221	257	221	274	227	240	171
ANN	FINE	27.9	23.0	24.0	23.8	20.8	19.3	18.1	19.9	16.8	15.7
REA	COARSE	32.1	22.9	24.5	24.4	22.3	18.7	17.3	16.5	16.7	12.7
IAL	% FINE	46.6	49.8	50.0	49.9	49.1	52.4	51.3	54.5	50.8	56.0
TNH	TOTAL	60.0	45.7	47.9	48.4	43.9	37.8	34.9	37.0	33.1	28.5
	STD DEV	29.7	25.2	23.7	23.8	22.6	18.9	16.4	16.9	18.4	13.0
	MAXIMUM	202.5	157.2	146.4	141.2	124.9	123.1	95.9	116.1	104.7	89.6
2ND	HIGHEST	155.5	149.1	124.2	126.5	120.8	103.0	94.1	103.2	96.1	75.3
	MINIMUM	10.2	8.4	10.0	6.9	7.8	10.0	8.3	9.5	4.1	6.2
	GEO MEAN	53.3	39.9	42.7	42.4	38.3	33.6	31.3	33.5	28.5	25.9
	GEO SD	1.6	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.8	1.6
JAN	NUMBER	24	28	28	28	20	23	21	8	27	29
	ARITH MEAN	36.0	28.4	30.3	36.2	32.3	23.7	22.6	24.2	19.9	28.9
	GEO MEAN	33.7	26.0	28.6	32.1	29.8	22.6	21.3	23.7	18.8	27.7
FEB		22	20	19	25	10	25	26	21	22	23
		47.4	39.3	38.3	43.8	43.5	25.5	27.8	28.9	26.7	21.9
		42.9	37.6	36.9	38.7	40.2	23.3	26.1	27.6	24.1	20.4
MAR		27	30	24	13	30	18	27	26	21	23
		52.7	30.4	34.0	37.9	33.2	28.1	27.5	27.3	19.8	21.5
		51.0	28.0	31.7	33.2	30.7	26.3	25.3	26.4	17.8	20.2
APR		20	29	26	26	29	21	27	28	25	25
		60.6	43.6	50.0	52.3	48.3	41.9	33.2	39.7	35.5	30.1
		55.4	39.9	45.3	45.3	42.8	37.7	30.3	36.6	31.6	27.8
MAY		22	21	23	28	27	26	26	28	23	18
		60.5	49.2	46.5	51.2	37.5	35.1	40.4	35.5	35.4	36.9
		55.4	44.6	42.9	47.2	32.8	32.5	38.5	33.1	31.7	34.5
JUN		29	28	20	24	27	17	20	23	23	21
		96.5*	71.8	62.9	60.9*	59.9	62.4*	53.9**	46.4	58.1*	25.8
		91.3	66.5	59.2	56.3	55.8	58.8	50.4	44.5	54.4	24.1
JUL		20	31	16	16	21	23	27	14	16	21
		67.5	39.8	52.6	57.5	58.4**	57.3	42.0	45.7	38.2	22.9
		63.7	36.3	49.0	53.0	53.1	53.5	40.3	43.7	35.8	21.4
AUG		21	19	27	11	18		9	20	7	11
		73.8	71.5**	70.3*	59.2	64.1*		56.2*	62.8*	47.6	53.7*
		67.7	59.1	63.6	49.5	58.3		50.3	59.5	41.8	51.5
SEP		23	22		15	19	18	25	9	18	
		71.2	53.0		66.8	54.7	46.8	43.6	45.2	40.0	
		67.7	50.6		61.4	51.7	45.3	41.3	42.4	37.9	
OCT		27	20		3	25	6	25	15	12	
		50.4	51.0*		28.9	36.5	31.8	27.7	25.8	34.2	
		42.6	44.8		27.0	32.9	28.4	26.4	25.0	30.7	
NOV		21	19		15	20	16	17	17	16	
		50.2	43.4		40.3	21.5	39.8	32.4	28.1	21.1	
		42.4	39.7		35.4	19.7	37.0	28.0	24.0	17.7	
DEC		19	15		11	11	28	24	18	24	
		46.1	32.1		35.9	37.5	29.4	26.3	30.4	26.1	
		44.3	29.2		34.0	34.4	27.9	23.4	28.7	24.5	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.3 1976 ANNUAL AND MONTHLY STATISTICS FOR COARSE (MICROGRAMS PER CUBIC METER).

STATION	103	105	106	108	112	115	118	120	122	124
NUMBER	288	291	191	240	263	230	287	257	259	182
ARITH MEAN	32.1	22.9	24.5	24.4	22.9	18.7	17.3	16.5	16.7	12.7
ARITH SD	17.1	12.9	12.6	13.8	14.0	11.2	9.0	8.3	10.6	8.1
MAXIMUM	106.8	87.7	61.6	69.8	83.7	63.5	41.4	49.6	51.5	46.0
2ND HIGHEST	91.8	64.3	58.9	68.6	80.3	46.5	40.6	41.7	48.0	37.4
MINIMUM	.0	.9	4.2	1.6	1.9	.3	1.1	.0	.9	.0
GEO MEAN	27.4	19.4	21.4	20.2	18.3	15.1	14.7	14.4	13.4	10.0
GEO SD	1.9	1.9	1.7	2.0	2.1	2.1	1.9	1.7	2.0	2.2
JAN NUMBER	24	29	28	28	20	24	21	8	28	30
ARITH MEAN	19.0	14.7	14.8	17.0	17.4	10.6	10.8	10.9	8.5	14.3
GEO MEAN	17.1	12.9	13.5	14.8	15.0	9.7	9.2	10.8	7.3	13.6
FEB	22	20	19	25	10	26	26	24	23	24
	25.8	21.8	20.4	23.3	26.9	12.9	14.3	13.0	12.3	11.
MAR	21.4	20.6	19.6	18.9	23.0	10.7	12.8	12.0	10.5	9.
	27	30	24	29	30	19	27	27	22	2.
	29.0	16.7	16.1	19.3	17.9	12.8	13.9	12.0	9.6	10.4
APR	27.5	14.7	14.6	15.9	15.9	11.6	12.3	11.2	8.1	9.2
	28	23	26	26	30	22	28	28	25	25
	34.9	23.6	28.8**	28.9	30.3**	21.7	17.3	18.9	18.5	16.5
MAY	31.2	21.7	25.0	23.5	25.9	17.8	15.4	16.9	16.1	14.8
	24	21	23	28	27	27	27	31	23	22
	31.8	28.1	25.5*	29.5	22.3	18.3	20.2	16.7	19.8**	22.7*
JUN	28.8	25.7	22.9	26.3	18.8	15.8	18.7	15.2	16.2	20.8
	29	29	27	24	27	17	21	26	29	24
	49.0*	33.0	33.2	30.9**	29.3	29.5	19.7	18.4	29.5*	5.1
JUL	46.1	29.8	31.1	27.7	26.6	28.1	18.2	16.2	27.4	4.6
	20	31	16	17	23	24	27	15	18	22
	35.4	17.0	22.8	28.4	32.8*	29.0*	22.1	21.0	18.3	5.1
AUG	32.5	14.7	20.5	25.0	29.1	25.2	20.2	19.3	16.3	3.6
	21	23	28	12	18		14	27	7	12
	33.4	28.8	31.9	21.7	28.6		23.6	23.1*	15.3	19.5
SEP	29.7	21.0	29.0	19.2	26.6		20.8	21.2	11.9	18.6
	23	25		16	20	21	29	16	22	
	43.2	27.6		37.7*	28.4	23.5	25.1**	23.5	22.4	
OCT	41.1	25.9		34.7	25.6	22.2	23.6	22.2	20.6	
	27	20		9	25	6	26	15	19	
	25.9	26.3*		11.5	14.8	15.3	13.1	9.0	17.0	
NOV	17.6	21.0		9.1	10.5	6.7	10.3	7.6	14.0	
	24	19		15	22	16	17	17	19	
	31.0	22.9		19.9	8.2	22.5	15.8*	13.4	13.7	
DEC	26.0	20.4		16.6	6.5	17.7	12.3	11.5	10.1	
	19	15		11	11	28	24	23	24	
	22.9	15.2		15.8	16.1	12.6	12.1	13.1	12.6	
	21.7	13.2		14.7	14.0	11.0	10.7	11.9	11.9	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.4 1976 ANNUAL AND MONTHLY STATISTICS FOR FINE (MICROGRAMS PER CUBIC METER).

STATION	103	105	106	108	112	115	118	120	122	124
NUMBER	280	294	211	243	308	272	288	254	261	181
ARITH MEAN	27.9	23.0	24.0	23.8	20.8	19.3	18.1	19.9	16.8	15.7
ARITH SD	16.0	14.1	13.0	12.7	11.6	10.1	10.8	10.7	10.4	8.8
MAXIMUM	95.7	88.1	87.5	80.5	74.8	77.4	75.8	66.5	54.2	58.6
2ND HIGHEST	85.9	82.9	72.5	77.1	60.7	67.1	70.3	61.5	53.1	52.6
MINIMUM	1.3	1.9	5.5	4.2	3.0	3.9	3.1	1.9	1.4	2.5
GEO MEAN	23.9	19.3	21.2	20.7	18.0	17.1	15.5	17.2	13.8	13.6
GEO SD	1.8	1.8	1.6	1.7	1.7	1.6	1.7	1.8	1.9	1.7
JAN NUMBER	24	29	28	28	30	24	21	15	27	30
ARITH MEAN	17.0	13.9	15.5	19.2	15.2	13.3	11.8	14.1	11.4	14.8
GEO MEAN	15.7	12.4	14.6	16.5	14.4	12.4	11.1	13.2	10.3	13.8
FEB	22	20	29	25	26	26	27	21	22	23
	21.6	17.6	17.8	20.6	17.5	13.0	13.3	15.4	14.4	10.6
	19.6	15.3	16.8	18.6	16.3	12.0	12.0	14.6	12.5	9.3
MAR	27	30	27	13	31	18	29	26	21	23
	23.7	13.6	18.5	17.9	15.3	15.6	13.4	15.0	10.7	11.0
	22.6	12.4	17.2	15.5	14.2	14.5	12.4	14.2	9.1	10.1
APR	20	29	27	27	23	21	27	29	26	25
	24.5	20.0	21.6	23.1	17.6	19.3	15.5	20.6	16.5	13.6
	22.5	17.6	19.9	20.6	15.8	17.6	14.1	19.2	14.2	12.2
MAY	22	28	30	28	28	28	28	28	25	21
	29.6	21.5	23.0	21.6	15.9	17.7	21.4	18.1	15.7	13.7
	26.3	19.1	21.2	19.1	12.8	16.3	20.0	16.4	13.3	12.9
JUN	29	28	23	26	28	18	22	24	29	22
	47.5☆	38.9	32.3	32.4☆	31.0	32.3☆	33.2☆	27.3	29.3☆	20.7
	43.2	35.8	30.1	29.3	28.1	29.3	29.0	24.8	26.8	18.8
JUL	22	31	20	18	21	28	27	22	16	26
	31.7	22.9	28.4	29.3	25.3	27.4	19.9	22.8	19.0	17.2
	30.1	20.6	25.8	27.5	22.3	25.5	17.8	19.7	16.8	15.1
AUG	22	19	27	13	21	18	9	20	12	11
	41.6	42.2☆	38.4☆	35.7☆☆	34.2☆	21.8	34.6	39.2☆	30.9	33.2☆
	37.7	36.1	33.9	28.6	30.3	17.4	31.2	37.6	28.9	31.2
SEP	23	23		19	24	19	25	9	22	
	28.0	25.9		28.4	27.0	24.4	19.2	19.3	17.2	
	24.9	24.3		25.4	24.3	22.6	15.7	16.6	13.9	
OCT	28	21		16	30	25	26	19	19	
	24.0	24.4		18.3	21.2	16.5	14.9	16.1	17.2	
	20.2	20.8		16.2	19.6	15.8	14.1	13.9	15.6	
NOV	22	21		15	24	19	19	21	17	
	18.0	21.4		20.4	13.7	17.3	17.1	14.1	9.0	
	14.1	18.7		18.0	12.6	16.4	15.1	11.3	7.8	
DEC	19	15		15	16	28	28	20	25	
	23.2	16.9		20.2	20.7	16.8	15.2	15.6	13.5	
	21.5	15.5		18.9	18.1	15.7	13.1	14.6	11.6	

☆ Month in which maximum occurs.
☆☆ Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.5 1976 ANNUAL AND MONTHLY STATISTICS FOR SULFUR (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	218	260	311	291	284	263	268	190
A M	FINE	2999.4	2799.5	3116.2	2925.6	2651.5	2627.4	2501.1	2523.9	2358.9	2241.2
R E	COARSE	556.1	318.2	375.3	336.7	295.4	184.4	217.7	202.2	157.5	142.6
I A	% FINE	83.1	88.4	88.2	88.8	88.8	92.2	91.4	91.3	91.8	92.8
T N	TOTAL	3524.5	3118.1	3494.3	3257.0	2948.5	2768.4	2705.1	2744.9	2536.3	2388.6
H	STD DEV	2540.9	2412.1	2723.3	2277.2	2248.7	1724.6	2031.5	2044.5	1951.2	2036.7
	MAXIMUM	15486.4	16955.4	16531.7	14971.0	14456.9	14734.8	15112.3	12207.8	11451.7	15430.5
2ND	HIGHEST	14961.5	16053.2	16149.1	14668.6	13664.7	10811.7	12273.6	10905.6	10611.0	13621.6
	MINIMUM	712.2	492.1	620.3	328.4	459.6	675.4	432.8	294.4	319.5	376.0
	GEO MEAN	2866.1	2483.5	2773.4	2667.1	2318.8	2371.4	2179.4	2129.0	1955.2	1885.4
	GEO SD	1.9	1.9	1.9	1.9	2.0	1.7	1.9	2.1	2.1	1.9
JAN	NUMBER	23	30	28	27	30	24	21	11	27	30
	ARITH MEAN	1996.7	1879.4	1775.1	2297.7	1736.8	2199.8	1571.1	1787.7	1708.4	1569.2
	GEO MEAN	1889.2	1738.4	1690.7	2073.6	1619.2	2014.6	1476.3	1488.9	1532.0	1417.5
FEB		22	29	29	26	27	25	26	16	23	25
		2572.9	2136.6	2645.8**	2712.2	1953.5	1938.3	1827.3	1866.1	1883.5	1692.2
		2302.0	1887.1	21( ).8	2418.3	1732.3	1802.3	1611.4	1662.0	1638.2	1470.7
MAR		27	30	28	29	31	31	26	22	22	24
		2463.8	2074.9	2317.3	2489.7	2220.2	2155.6	1917.1	2147.7	1675.8	1764.3
		2231.4	1860.3	2082.2	2166.3	1985.1	1943.9	1722.5	1921.6	1482.2	1586.8
APR		27	29	27	26	29	26	27	29	26	25
		3222.5	2817.6	3040.4	3191.9	2886.3	2619.7	2372.0	2640.9	2598.3	2348.5
		2798.0	2402.0	2608.3	2715.6	2497.0	2219.9	1984.7	2278.2	2080.1	1953.9
MAY		24	28	30	27	27	28	27	31	23	24
		3509.4	2824.1	3389.3	3154.0	2825.6	2572.8	2855.2	2759.0	2378.5	2330.6
		3000.4	2502.6	2884.9	2677.2	2342.5	2323.0	2399.4	2311.7	1906.0	2078.5
JUN		29	29	29	26	27	17	23	24	30	24
		5431.7*	4649.4	4712.2	4818.5	4929.3**	4448.8*	4687.8**	4222.0*	4129.4**	2682.6
		4280.9	3621.5	3751.3	3779.2	3900.0	3686.1	3745.2	3379.4	3205.4	2007.4
JUL		20	31	19	19	24	28	27	22	17	26
		4670.7	3761.5	3628.4	3729.1	4027.9	3800.4	3427.0	3103.2	2647.4	2201.4
		4256.2	3332.8	3149.3	3307.9	3455.6	3465.6	3039.8	2823.8	2241.7	1861.8
AUG		21	22	28	23	21	23	9	28	12	12
		6270.1	6422.1*	6467.1*	6201.0*	5505.3*	4220.7	6867.4*	5145.2**	5485.5	7153.4*
		5405.7	5217.0	5492.1	5106.1	4723.4	3521.4	5853.6	4386.4	5253.6	6312.7
SEP		23	25		20	24	18	25	16	23	
		4731.3	4491.1		4680.1	4272.8	3876.0	3694.3	3113.5	3617.9*	
		3990.6	3913.1		4099.5	3658.8	3465.9	3104.7	2355.8	2726.8	
OCT		28	22		16	29	25	27	19	21	
		2999.6	2700.3		2465.7	2634.9	2313.1	2214.4	2017.4	2537.0	
		2634.8	2358.9		2291.4	2283.9	2171.2	2067.3	1869.6	2088.4	
NOV		24	19		15	26	18	19	21	19	
		2201.1	1883.5		2145.5	1165.2	1914.6	1953.0	1319.0	1003.5	
		1897.0	1544.3		1787.7	1030.1	1771.6	1691.8	1021.2	884.8	
DEC		19	15		16	16	28	27	24	25	
		2264.2	1460.9		1995.7	1793.1	2007.4	1689.1	1397.0	1635.7	
		1934.0	1320.2		1728.7	1507.5	1825.3	1458.6	1188.4	1403.9	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.6 1976 ANNUAL AND MONTHLY STATISTICS FOR SILICON (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	218	260	294	291	284	263	238	190
ANNUAL	FINE	291.7	251.6	405.5	288.2	272.1	252.4	243.6	195.7	190.7	199.2
	COARSE	4494.7	3354.5	3797.6	3835.6	4068.5	3273.0	2689.3	2515.1	2866.3	2025.9
	% FINE	6.6	7.6	9.9	7.6	7.9	9.4	8.9	8.2	7.2	19.7
	TOTAL	4781.6	3606.3	4198.6	4123.4	4322.7	3505.8	2856.0	2736.4	3033.1	2219.9
	STD DEV	2891.1	1990.5	2247.2	2856.4	3340.8	2607.6	1869.8	1636.0	2026.3	2056.1
	MAXIMUM	17671.4	13400.0	11752.9	15506.7	20796.6	13143.8	11179.7	8804.7	11032.2	12005.6
	2ND HIGHEST	16840.7	9567.8	11195.2	14311.8	16787.5	12814.7	9662.4	8438.5	8652.0	9683.4
	MINIMUM	247.8	295.6	426.1	272.5	237.0	80.0	244.3	60.3	60.7	87.7
	GEO MEAN	3879.3	3064.6	3587.5	3194.8	3168.3	2559.9	2290.4	2203.5	2250.1	1311.1
	GEO SD	2.0	1.8	1.8	2.1	2.3	2.4	2.0	2.1	2.5	3.2
JAN	NUMBER	23	30	28	27	30	24	21	11	27	30
	ARITH MEAN	2722.4	2180.2	2664.5	2172.3	2231.9	1738.1	1708.3	702.3	1695.5	1693.7
	GEO MEAN	2083.8	1924.7	2318.8	1807.9	1938.7	1474.4	1454.6	496.6	1323.5	1445.8
FEB		22	29	23	26	27	25	26	16	23	25
		4657.2	3368.1	3586.2	4163.2	3736.3	2746.5	2553.3	3003.5*	2864.6	2506.5
		3771.4	2903.0	3180.9	3204.6	2967.9	2088.1	2063.8	2518.4	2347.9	2091.0
MAR		27	30	28	29	31	31	26	22	22	24
		3625.8	2538.5	3538.2	3132.2	3332.1	2505.6	2494.5	1966.1	2083.8	2182.7
		3169.9	2239.0	3043.0	2573.2	2827.6	2092.0	2012.1	1685.1	1678.8	1787.2
APR		27	29	27	26	29	26	27	29	26	25
		5164.1	3918.9	4832.3	4691.3	7017.8	4425.6	3178.3	3364.8	4182.2	3484.9
		4177.4	3444.6	4117.4	3849.1	5468.1	3441.0	2510.4	2816.6	3585.5	2750.3
MAY		24	28	30	27	10	28	27	31	23	24
		4888.5	4213.4	4502.2*	6239.6*	3821.7	4961.5*	3291.6	2705.5	2995.3	4375.6*
		3928.6	3700.4	3756.4	5098.3	3386.2	3863.7	2703.0	2176.4	2316.8	2784.7
JUN		29	29	29	26	27	17	23	24	30	24
		5516.6	4241.3	5020.8	5667.9	5232.7	5153.5	3020.3	2543.2	3848.0	402.5
		4903.0	3929.9	4539.5	4735.1	4587.1	4341.6	2679.0	2339.3	3280.7	320.6
JUL		20	31	19	19	24	28	27	22	17	26
		6536.6	3507.2	4152.8**	5838.4**	7813.2*	5174.7**	4451.4*	3896.4**	3859.4	462.7
		5794.8	3124.1	3727.1	4857.5	6599.1	3607.1	3790.1	3553.4	3446.3	328.4
AUG		21	22	28	13	21	23	9	28	12	12
		5454.3	4377.3	5270.3	3818.9	4993.4	2131.6	3538.2	2995.8	2544.4	3507.2
		4672.3	3677.1	4719.2	3068.2	4562.5	1190.2	3258..	2655.8	2180.1	3325.3
SEP		23	25		20	24	18	25	16	23	
		6233.5*	4317.9		4899.7	6692.4	4440.4	3715.3	4280.9	3798.1**	
		5654.7	4729.0		4015.5	5652.2	4217.1	3302.3	3957.3	3215.8	
OCT		28	22		16	29	25	27	19	21	
		4169.5	3780.5*		2292.2	2914.5	3506.6	2144.4	1980.5	2940.6*	
		3231.4	2584.2		1554.4	1832.4	2707.8	1625.1	1371.2	1273.3	
NOV		24	19		15	26	18	19	21	2	
		5324.2**	3610.6**		3061.6	1755.5	3940.1	2613.4	2624.0	110.5	
		4237.6	3197.2		2903.6	1364.1	3272.7	2063.3	2236.9	108.9	
DEC		19	15		16	16	28	27	24	12	
		3049.8	2616.3		2212.3	2282.0	2076.1	1754.9	1972.1	2151.9	
		2782.8	2441.4		2117.3	1946.2	1767.1	1605.5	1833.9	2008.9	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.7 1976 ANNUAL AND MONTHLY STATISTICS FOR ALUMINUM (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	218	260	294	291	284	263	238	190
ANNUAL	FINE	177.0	166.4	150.2	143.9	168.5	109.9	105.9	117.0	78.7	76.3
	COARSE	1353.1	972.6	987.3	1053.2	1133.5	842.7	716.3	673.4	709.9	523.0
	% FINE	12.3	15.7	14.3	13.2	16.0	13.7	13.6	16.5	10.9	22.2
	TOTAL	1528.7	1138.5	1134.7	1199.3	1302.0	948.5	807.6	799.9	785.1	599.1
	STD DEV	856.1	563.2	543.2	734.0	965.3	621.3	500.7	435.3	473.9	460.1
	MAXIMUM	4752.0	3342.4	3709.1	4287.4	6454.8	4139.8	3679.5	2722.7	2395.8	2704.6
2ND	HIGHEST	4454.3	3237.8	2575.0	4027.9	5200.9	3363.4	3416.5	2693.9	2338.2	1863.7
	MINIMUM	34.3	130.5	110.9	89.0	138.5	103.7	94.5	15.7	33.7	5.3
	GEO MEAN	1281.5	1007.6	1003.6	985.9	1017.3	763.5	683.1	673.2	625.3	400.8
	GEO SD	1.9	1.7	1.7	1.9	2.1	2.0	1.8	2.0	2.1	2.8
JAN	NUMBER	23	30	28	27	30	24	21	11	27	30
	ARITH MEAN	968.6	763.1	774.0	723.3	715.3	530.2	517.3	267.9	502.5	553.5
	GEO MEAN	732.6	694.6	688.2	604.1	636.4	462.4	443.6	187.2	407.4	502.5
FEB		22	29	29	26	27	25	26	16	23	25
		1667.2**	1027.1	1035.0	1365.7	1160.1	778.5	762.3	925.3*	841.2	704.1
		1312.2	900.0	988.0	1054.5	978.8	618.8	633.7	795.7	716.3	612.3
MAR		27	30	28	29	31	31	26	22	22	24
		1235.7	758.2	950.9	998.4	954.0	711.2	710.3	510.4	585.3	617.2
		1043.9	669.3	839.8	809.3	828.5	607.7	576.3	433.4	486.1	501.3
APR		27	29	27	26	29	26	27	29	26	25
		1493.0	1056.6	1311.2	1238.9	2069.4	1160.2	803.1	968.9	1095.6	863.4
		1178.6	951.9	1150.0	1085.9	1930.8	958.0	674.8	821.9	915.6	658.5
MAY		24	28	30	27	10	28	27	31	23	24
		1259.5	1045.9	1061.2**	1529.8**	953.6	1148.2	751.0	707.9	649.6	956.5*
		1043.2	984.4	938.3	1290.2	848.9	948.4	652.2	612.8	522.5	669.0
JUN		29	29	29	26	27	17	23	24	30	24
		1604.6	1208.8	1225.7	1315.5	1413.6	1164.2	746.7	753.9	886.8	146.7
		1447.9	1146.9	1145.1	1136.7	1272.3	1035.3	695.4	713.9	795.4	121.1
JUL		20	31	19	19	24	28	27	22	17	26
		2153.2*	1291.4**	1224.3*	1754.3*	2431.2*	1436.5*	1350.0*	1068.3**	1053.6**	195.8
		1906.4	1162.2	1086.1	1509.4	2038.7	1124.6	1120.3	949.3	926.3	133.2
AUG		21	22	28	13	21	23	9	28	12	12
		1739.0	1466.4	1474.1	1210.1	1419.3	612.3	1057.1	863.7	771.6	971.3
		1579.8	1317.6	1385.2	1056.6	1323.5	422.7	987.1	797.1	695.2	916.3
SEP		23	25		20	24	18	25	16	23	
		1810.5	1525.0		1331.6	1786.2	1085.4	966.7	1099.7	872.0	
		1678.1	1490.9		1219.8	1576.1	1049.6	902.4	1049.6	793.4	
OCT		28	22		16	29	25	27	19	21	
		1460.7	1343.5*		821.9	1059.4	922.3	680.6	690.5	773.6*	
		1286.9	1126.3		641.8	775.8	789.9	602.3	528.3	426.3	
NOV		24	19		15	26	18	19	21	2	
		1817.0	1225.1		1052.0	607.9	1177.8	788.2	832.0	75.0	
		1545.6	1142.2		979.3	518.2	1040.3	669.8	729.1	65.1	
DEC		19	15		16	16	28	27	24	12	
		1242.9	1099.3		876.2	938.3	771.0	651.8	722.8	692.7	
		1177.9	1029.9		842.0	800.8	707.2	600.9	683.4	593.0	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.8 1976 ANNUAL AND MONTHLY STATISTICS FOR CALCIUM (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	218	260	311	291	284	263	268	190
A M	FINE	158.4	129.8	110.5	145.1	105.7	95.5	160.1	73.4	98.8	93.3
R E	COARSE	3144.0	2558.3	2368.1	2726.8	1852.2	1595.0	1946.8	1375.6	1794.1	838.5
I A	% FINE	4.9	5.0	4.5	5.2	6.2	7.7	8.9	5.5	5.9	23.6
T N	TOTAL	3288.5	2687.5	2477.3	2889.8	1959.1	1677.9	2074.5	1459.6	1877.4	991.4
H	STD DEV	2021.7	1569.6	1270.9	1931.9	1163.8	1187.0	1478.3	903.2	1522.6	861.7
	MAXIMUM	10921.4	11417.7	6761.8	12985.1	6893.1	7315.7	16844.7	5953.2	9267.3	4742.1
2ND	HIGHEST	10494.9	9106.7	6327.5	11979.8	6029.3	6512.3	7047.2	5500.5	8667.8	3793.9
	MINIMUM	195.4	343.9	322.3	100.5	81.5	40.4	160.3	113.2	62.2	10.5
	GEO MEAN	2656.0	2273.3	2160.3	2231.7	1610.7	1236.0	1692.4	1203.9	1390.8	593.2
	GEO SD	2.0	1.8	1.7	2.2	2.0	2.4	1.9	1.9	2.3	3.3
JAN	NUMBER	23	30	28	27	30	24	21	11	27	30
	ARITH MEAN	1918.2	1843.9	1824.1	2033.7	1663.8	1249.7	1461.1	637.0	969.2	1030.6
	GEO MEAN	1425.0	1586.0	1634.6	1547.2	1386.1	1036.4	1273.7	492.2	800.1	885.9
FEB		22	29	29	26	27	25	26	16	23	25
		2993.2	2497.5	2112.2	3347.7	2000.9	1386.3	1738.8	1367.4	1287.7	1020.0
		2350.1	2129.3	1895.5	2496.3	1669.2	1033.4	1494.0	1240.9	1064.1	889.8
MAR		27	30	28	29	31	31	26	22	22	24
		2503.0	1992.6	1838.5	2278.3	1697.9	1137.1	1537.2	967.1	1057.3	948.9
		2213.5	1731.6	1656.6	1829.8	1480.7	969.7	1315.4	872.6	934.7	819.7
APR		27	29	27	26	29	26	27	29	26	25
		3827.2	3044.9	2874.1	3400.9	2672.8☆	1766.9	1859.0	1638.0	2118.4	1735.3☆
		3114.9	2588.5	2459.5	2806.5	2202.6	1386.9	1493.8	1338.2	1784.8	1316.7
MAY		24	28	30	27	27	28	27	31	23	24
		2755.2	2792.0	2583.4☆☆	3129.6	1646.9	1716.8	1898.9	1197.6	1945.9	1490.6
		2197.0	2511.7	2296.9	2618.5	1487.5	1385.1	1621.8	1043.5	1103.1	1162.9
JUN		29	29	29	26	27	17	23	24	30	24
		3632.3☆☆	2859.7	2824.8	2819.0	1842.9	1845.6	1519.4	1332.1	3192.1	148.8
		3146.3	2600.7	2586.5	2319.3	1700.8	1598.7	1279.7	1148.3	2379.3	119.4
JUL		20	31	19	19	24	28	27	22	17	26
		3749.3	2076.4	2227.0	2934.0	2419.9	1701.0	2913.0	1542.2	2395.2☆☆	233.2
		3285.4	1938.5	2022.5	2579.2	2153.1	1195.5	2618.7	1359.4	1894.1	131.4
AUG		21	22	28	13	21	23	9	28	12	12
		3919.7	3384.9	3461.0☆	2608.1	2533.0	932.5☆☆	2977.2	1718.8	1612.1	1698.3
		3305.9	2760.4	3059.1	2044.2	2300.5	440.3	2670.6	1487.3	1212.7	1569.2
SEP		23	25		20	24	18	25	16	23	
		4301.6☆	3942.2		4414.8☆☆	2740.1	2476.6	2844.9	2506.0☆☆	2491.2☆	
		4011.0	3744.2		3474.7	2454.3	2310.5	2585.3	2280.9	2066.2	
OCT		28	22		16	29	25	27	19	21	
		3463.5	3189.7☆		2294.3☆	1524.1	2013.3	1891.9	1251.3	1996.8	
		2573.9	2216.5		1167.5	1095.2	1495.4	1554.1	930.6	1537.5	
NOV		24	19		15	26	18	19	21	19	
		3845.5	2718.4		3212.3	1069.0	3205.3☆	3400.7☆	1753.9☆	1833.3	
		3212.9	2352.9		2806.2	880.4	2616.8	2300.7	1407.9	1411.0	
DEC		19	15		16	16	28	27	24	25	
		2327.7	2287.0		2143.1	1997.6☆☆	1475.0	1653.4	1432.1	1410.8	
		2071.0	2061.0		1962.6	1621.5	1274.1	1498.2	1294.6	1253.0	

☆ Month in which maximum occurs.
☆☆ Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.9 1976 ANNUAL AND MONTHLY STATISTICS FOR LEAD (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	217	259	311	291	284	258	268	187
A M	FINE	540.9	628.0	665.8	577.5	709.9	328.6	283.6	529.1	180.1	147.6
R E	COARSE	143.7	186.0	204.3	173.7	180.3	65.8	86.6	123.5	29.9	41.2
I A	% FINE	78.8	77.5	76.0	79.5	79.2	83.1	78.6	80.8	85.9	81.8
T N	TOTAL	683.2	811.8	869.5	753.0	831.1	335.9	371.0	652.6	211.3	188.2
H	STD DEV	591.5	583.7	415.2	949.1	554.6	254.9	287.9	369.8	172.2	246.0
	MAXIMUM	6046.7	6036.9	2735.2	11929.0	4353.5	1720.1	2358.6	2477.7	938.8	2102.4
	2ND HIGHEST	4275.0	4649.7	2412.4	5332.5	4116.1	1205.3	2038.4	1971.6	815.7	1861.1
	MINIMUM	69.7	95.4	195.6	41.1	130.4	46.0	42.7	111.4	17.4	31.8
	GEO MEAN	538.3	683.6	782.8	538.5	753.6	324.5	295.8	566.4	152.0	136.2
	GEO SD	2.0	1.8	1.6	2.2	1.8	1.9	2.0	1.7	2.3	2.0
JAN	NUMBER	23	30	28	27	30	24	21	8	27	29
	ARITH MEAN	609.4	933.0	940.8**	1218.1*	770.8	474.6	392.7	502.8	181.7*	325.7*
	GEO MEAN	490.9	806.2	852.8	533.3	653.2	386.3	345.6	423.8	121.8	223.3
FEB		22	29	29	26	27	25	26	19	23	24
		702.6	816.9	880.5	816.2	972.5	380.5**	298.3	514.9	282.8	221.4
		584.9	684.1	782.7	635.2	798.2	297.7	252.0	447.6	198.5	159.6
MAR		27	30	28	29	31	31	26	17	22	24
		490.0	613.1	813.2	634.3	695.2	300.3	298.0	470.8	126.0	223.3**
		383.6	542.0	736.3	470.9	620.8	239.4	230.7	426.3	90.4	129.4
APR		27	29	27	26	29	26	27	29	26	25
		584.1	627.6	831.4*	648.7	856.6	354.3	327.3*	610.4	215.0	115.3
		459.8	505.9	700.0	523.1	755.5	291.7	196.8	530.0	184.9	103.0
MAY		24	28	30	27	27	28	27	31	23	24
		498.3	733.8	868.7	635.4	728.8	377.1	339.3	581.5	134.0	169.3
		431.8	650.3	805.9	490.6	657.8	297.3	286.5	529.1	102.8	142.0
JUN		29	29	28	25	27	17	23	24	30	24
		692.9	712.3	823.8	661.4	788.4	406.5	335.9	675.3	200.6	109.0
		583.2	631.0	756.3	562.0	735.4	342.8	275.0	624.4	161.2	90.4
JUL		20	31	19	19	24	29	27	22	17	25
		631.0	623.8	768.8	664.3	747.6	465.1	411.2	495.7	164.3	124.4
		577.7	590.6	696.1	504.0	681.2	428.1	356.1	459.3	130.1	112.7
AUG		21	22	28	13	21	22	9	28	12	12
		747.3	889.2**	994.6	701.5	1119.9	275.6	337.7	823.2	312.6	200.6
		634.8	709.2	925.0	629.7	1005.2	252.6	315.7	747.1	272.3	183.9
SEP		23	25		20	24	18	25	16	24	
		788.0	932.5		810.8	1204.6	427.2	330.2	883.7	236.8	
		686.2	805.0		673.9	1094.7	373.7	293.8	807.8	198.6	
OCT		28	22		16	29	25	27	19	20	
		1018.4*	1134.4*		799.7	1194.5*	393.7	446.8	766.8**	307.3**	
		650.1	854.9		441.0	966.4	328.8	374.4	660.7	231.5	
NOV		24	19		15	26	18	19	21	19	
		726.2	1038.3		721.8	674.0	458.2	583.5**	756.0*	155.9	
		513.2	954.2		489.0	524.0	373.4	438.2	578.1	94.7	
DEC		19	15		16	16	28	27	24	25	
		692.8	964.6		648.6	1115.6	464.1*	382.7	670.4	256.7	
		601.2	826.6		589.5	891.1	371.1	315.0	595.1	194.5	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.10 1976 ANNUAL AND MONTHLY STATISTICS FOR VANADIUM (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	217	259	311	291	284	258	268	187
A M	FINE	3.2	3.9	3.8	5.5	3.6	3.3	1.8	1.8	1.3	1.2
R E	COARSE	3.9	2.2	2.3	4.9	3.1	1.8	1.2	1.0	.9	.8
I A	% FINE	45.6	60.0	58.1	51.0	54.5	58.6	53.9	57.7	56.5	51.8
T N	TOTAL	7.1	6.1	6.1	10.4	6.8	5.2	2.9	2.7	2.2	1.9
H	STD DEV	7.3	5.6	5.0	9.4	5.7	4.8	3.3	3.2	3.3	2.0
	MAXIMUM	61.1	32.5	27.3	63.7	29.3	24.3	22.7	17.9	20.3	10.3
2ND	HIGHEST	29.7	29.5	23.0	52.3	28.7	24.2	19.0	16.9	17.1	8.5
	MINIMUM	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
	GEO MEAN	4.5	3.8	4.1	7.1	4.6	3.7	2.1	1.9	1.6	1.7
	GEO SD	2.9	3.1	2.7	2.6	2.8	2.5	2.5	2.7	2.6	2.1
JAN	NUMBER	23	30	28	27	30	24	21	8	27	29
	ARITH MEAN	.0	7.8	5.6	11.7*	4.1	5.8	2.9	2.6	3.7**	2.4*
	GEO MEAN	1.1	6.1	4.1	5.6	2.5	4.3	2.1	1.8	2.0	1.9
FEB		22	23	29	26	27	25	26	19	23	24
		.0	7.8	6.5	16.4	5.6	6.8	4.7	5.6*	5.1	2.1
		1.1	6.5	4.7	13.7	4.5	4.8	3.7	4.1	3.9	1.5
MAR		27	30	28	29	31	31	26	17	22	24
		.1	6.3	6.6*	10.0	8.6	5.0	4.6*	5.0	2.7	1.9
		1.1	3.9	4.5	5.9	7.0	4.2	3.4	3.4	2.4	1.5
APR		27	29	27	26	29	26	27	29	26	25
		7.1	6.2	4.5	8.3	9.4	6.0	3.0	3.4	2.8	3.2
		5.4	5.1	3.1	6.4	7.9	5.0	2.2	2.5	1.9	2.9
MAY		24	28	30	27	27	28	27	31	23	24
		7.3	7.7*	5.3	9.3	4.3	4.9	3.1	2.4	.8	2.7
		6.3	5.5	3.8	7.6	3.4	4.3	2.6	1.8	.9	2.2
JUN		29	29	28	25	27	17	23	24	30	24
		9.3	2.9	8.4	9.0	3.8	2.6	2.3	1.9	.4	.6
		7.4	1.9	5.8	7.2	2.4	2.0	1.9	1.6	1.0	1.2
JUL		20	31	19	19	24	29	27	22	17	25
		10.2	1.4	3.6	8.3	7.1	1.9	1.2	.3	.5	.0
		7.7	1.3	2.3	6.5	4.1	1.8	1.2	.8	1.2	1.1
AUG		21	22	28	13	21	22	9	28	12	12
		9.8	5.3	7.4**	4.0	5.3	.3	.2	.5	.2	2.9**
		7.8	2.2	5.0	3.3	3.5	1.2	1.1	.9	1.1	2.3
SEP		23	25		20	24	18	25	16	24	
		13.3	6.4		15.8**	10.9	8.1*	1.7	5.3	1.4	
		10.8	5.3		9.2	8.9	5.0	1.4	3.7	1.6	
OCT		28	22		16	29	25	27	19	20	
		10.3*	4.5		10.8	9.3*	5.5	2.3	2.9	2.6	
		6.9	2.7		7.9	7.1	4.0	1.5	2.4	1.8	
NOV		24	19		15	26	18	19	21	19	
		9.3	4.8		8.7	3.8	9.0	3.3	2.0**	1.3	
		6.6	2.8		7.1	2.7	7.1	2.2	1.6	1.0	
DEC		19	15		16	16	28	27	24	25	
		9.6	15.9**		8.4	10.2	7.4	4.2**	3.0	4.0*	
		8.2	15.0		6.7	7.5	5.3	2.9	2.2	2.4	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.11 1976 ANNUAL AND MONTHLY STATISTICS FOR TITANIUM (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	217	259	311	291	284	258	268	187
A M	FINE	21.3	35.4	90.2	19.7	40.3	12.4	32.7	14.8	7.2	6.1
R E	COARSE	140.9	187.9	440.6	114.1	187.9	79.2	138.3	74.0	57.6	38.4
I A	% FINE	13.5	16.0	15.4	15.6	16.0	17.2	17.3	16.5	14.3	15.2
T N	TOTAL	162.5	222.6	534.2	133.6	228.5	92.1	172.0	91.3	64.7	44.1
H	STD DEV	243.2	366.6	816.3	143.0	336.6	84.7	223.7	114.3	58.0	43.8
	MAXIMUM	3116.9	3685.4	5399.7	1363.4	3331.1	472.4	1932.5	953.1	292.2	231.5
2ND	HIGHEST	1240.0	3038.1	4820.0	708.8	2204.7	461.0	1625.0	882.7	291.4	208.1
	MINIMUM	.0	1.9	12.5	3.2	2.4	.0	.0	.2	.0	.0
	GEO MEAN	72.9	119.0	219.2	87.3	117.8	57.8	89.6	56.5	41.3	21.2
	GEO SD	5.0	3.0	3.9	2.6	3.2	3.2	3.4	2.8	3.0	4.6
JAN	NUMBER	23	30	28	27	30	24	21	8	27	29
	ARITH MEAN	17.5	61.1	142.1	61.5	87.0	38.6	148.1	15.6	31.9	31.6
	GEO MEAN	4.3	41.3	71.2	46.2	49.3	31.2	70.5	8.6	23.5	26.8
FEB		22	29	29	26	27	25	26	19	23	24
		81.1	168.8	893.6**	170.7	295.0*	71.9	191.5	137.2**	87.8**	51.9
		24.6	120.0	308.4	110.0	111.7	54.8	109.9	65.8	63.5	44.8
MAR		27	30	28	29	31	31	26	17	22	24
		52.4	131.8	576.6	107.2	131.9	74.1	102.7	82.6	59.4	41.9
		18.8	85.6	204.5	63.8	96.2	55.6	72.9	59.7	41.3	35.0
APR		27	29	27	26	29	26	27	29	26	25
		195.2	197.0	590.9	146.8	382.6	122.4**	112.6	114.2	98.7	65.6
		133.1	137.9	297.7	106.3	263.0	88.2	62.5	75.1	74.4	54.4
MAY		24	28	30	27	27	28	27	31	23	24
		181.3	245.4	386.9	181.8	156.5	148.3	134.4	69.5	58.1	94.0*
		127.4	170.8	225.9	134.0	97.5	109.8	109.2	58.5	25.0	63.6
JUN		29	29	28	25	27	17	23	24	30	24
		180.2	218.3	566.4	124.2**	168.1	122.2	175.8	55.3	50.8	3.7
		102.5	120.1	320.0	82.1	129.0	74.1	67.8	41.7	31.5	2.1
JUL		20	31	19	19	24	29	27	22	17	25
		264.4	225.3	236.3	182.3	352.3	124.7	197.3*	96.0	63.3	10.3
		235.2	155.2	140.5	147.3	248.5	83.0	80.1	74.8	44.9	3.6
AUG		21	22	28	13	21	22	9	28	12	12
		162.3	311.7	785.1*	141.4	371.4	33.5	86.7	152.3*	42.3	69.5
		133.0	152.8	339.3	90.9	202.8	8.0	60.1	84.3	29.0	59.7
SEP		23	25		20	24	18	25	16	24	
		219.5	366.2		167.0	324.9	108.4	222.4**	131.4	68.5	
		165.8	210.6		130.8	215.7	96.6	115.9	104.0	47.0	
OCT		28	22		16	29	25	27	19	20	
		254.8*	460.3*		134.9*	246.5**	76.1	139.8	55.5	86.0*	
		105.2	114.5		51.4	107.3	60.4	77.9	42.3	53.9	
NOV		24	19		15	26	18	19	21	19	
		174.3	199.7		107.2	77.4	104.8	260.4	60.6	57.4	
		135.5	117.7		87.3	46.3	87.2	138.2	40.4	39.4	
DEC		19	15		16	16	28	27	24	25	
		164.0	151.2		72.5	208.7	80.9*	259.2	75.7	67.9	
		99.3	118.1		64.7	94.6	56.7	138.3	44.9	50.9	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.12 1976 ANNUAL AND MONTHLY STATISTICS FOR IRON (NANOGRAMS PER CUBIC METER).

	STATION	103	105	106	108	112	115	118	120	122	124
	NUMBER	287	309	217	259	311	291	284	258	268	187
A M	FINE	217.5	236.1	283.3	280.0	161.8	118.6	129.6	104.7	109.6	80.8
R E	COARSE	1600.0	1010.1	1073.6	1431.0	920.1	646.4	568.1	508.7	529.3	334.6
I A	% FINE	12.5	19.2	20.1	16.5	16.7	18.6	19.4	17.4	18.0	31.4
T N	TOTAL	1817.2	1246.0	1357.6	1717.4	1082.6	763.6	686.2	623.8	639.2	411.6
H	STD DEV	1037.7	764.2	781.2	1458.9	781.4	451.4	362.8	350.2	363.5	305.4
	MAXIMUM	7707.6	7091.6	4189.7	9147.1	6109.4	2506.2	2144.8	2140.3	1956.6	1622.3
2ND	HIGHEST	5907.7	3886.2	4107.4	7959.8	4248.0	2321.2	2082.7	1610.3	1555.8	1298.4
	MINIMUM	293.1	148.7	135.8	108.0	65.7	83.2	95.1	57.4	78.5	22.4
	GEO MEAN	1539.2	1054.8	1148.0	1201.8	837.9	632.0	596.4	527.0	532.8	284.5
	GEO SD	1.8	1.8	1.8	2.4	2.1	1.9	1.7	1.9	1.9	2.7
JAN	NUMBER	23	30	28	27	30	24	21	8	27	29
	ARITH MEAN	1020.2	800.2	927.7	1360.5	694.9	546.7	543.2	248.3	441.9	393.6
	GEO MEAN	847.1	697.9	773.6	851.1	577.0	482.2	475.7	203.7	364.6	361.1
FEB		22	29	29	26	27	25	26	19	23	24
		1702.1	1147.0	1544.1	2476.5*	1091.1	660.8	691.6	663.7	743.3	483.7
		1469.8	1041.9	1278.8	1712.1	883.7	574.3	622.8	544.2	652.8	442.7
MAR		27	30	28	29	31	31	26	17	22	24
		1287.4	967.6	1388.2	1574.8	868.5	612.6	557.4	546.4	433.2	428.0**
		1181.6	849.4	1108.4	980.2	727.4	540.9	471.9	482.0	355.6	364.1
APR		27	29	27	26	29	26	27	29	26	25
		2031.7	1509.4	1560.1	2302.2	1778.0	906.6	653.8	777.2	859.6*	574.5
		1774.5	1274.2	1333.3	1723.1	1480.2	777.9	570.6	672.3	757.8	505.1
MAY		24	28	30	27	27	28	27	31	23	24
		1824.1	1413.3	1340.1**	1874.4	960.2	1027.0*	707.3	551.2	561.1	659.3*
		1572.2	1266.7	1190.8	1451.1	862.4	881.6	647.8	478.0	440.1	517.5
JUN		29	29	28	25	27	17	23	24	30	24
		2047.0	1226.3	1206.1	1385.8	1099.7	944.5	653.7	546.8	694.2	95.9
		1763.6	1112.6	1112.1	1155.0	997.7	818.1	573.6	506.2	602.0	76.0
JUL		20	31	19	19	24	25	27	22	17	25
		2131.4	1030.2	1002.9	1893.3	1764.6*	964.4**	925.0	724.6	723.2	122.7
		1994.9	944.1	884.2	1522.0	1471.2	760.1	798.3	656.5	647.4	85.5
AUG		21	22	28	13	21	22	9	28	12	12
		2188.7	1768.6	1779.4*	1557.1	1426.2	465.4	820.3	827.1**	793.5	675.9
		1973.2	1524.3	1618.9	1210.0	1291.2	335.3	792.3	747.6	736.7	631.1
SEP		23	25		20	24	18	25	16	24	
		2426.5**	1646.7		2166.1**	1521.6	989.3	806.4	936.9*	766.5	
		2251.9	1529.5		1615.5	1333.9	941.2	745.1	855.3	699.8	
OCT		28	22		16	29	25	27	19	20	
		1945.9*	1445.0*		1160.4	739.5	736.6	622.5	442.9	717.6	
		1539.2	993.4		649.3	564.6	624.6	546.8	359.8	571.2	
NOV		24	19		15	26	18	19	21	19	
		1922.9	1157.5		1169.7	396.0	852.0	748.6**	506.6	484.0	
		1620.9	985.8		960.4	325.4	768.3	624.7	429.8	396.4	
DEC		19	15		16	16	28	27	24	25	
		1201.9	933.5		1079.5	733.3	551.2	580.0*	465.6	516.2	
		1077.2	796.1		896.3	592.4	489.1	496.7	421.3	464.3	

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)

TABLE A.13 1976 ANNUAL AND MONTHLY STATISTICS FOR WIND SPEED AND DIRECTION.

	S103		S105		S124	
	AV WD SP (M/Sec)	WIND DIR (Compass)	AV WD SP (M/Sec)	WIND DIR (Compass)	AV WD SP (M/Sec)	WIND DIR (Compass)
NUMBER	358	358	351	361	352	363
ARITH MEAN	3.9	S***	3.4	S	3.9	S
ARITH SD	1.8		1.5		1.9	
MAXIMUM	10.5		8.5		9.8	
2ND HIGHEST	9.4		7.9		9.3	
MINIMUM	0.2		0.3		0.3	
JAN NUMBER	29	29	26	29	26	30
ARITH MEAN	4.3	NW***	4.0	W	4.7	NW
FEB	27	27	27	29	25	28
	5.0	S	4.3	S	5.1	S
MAR	31	31	31	31	31	31
	5.1**	S	4.5**	S	5.1*	S
APR	30	30	30	30	30	30
	4.3	S	3.6	S	4.3	S
MAY	30	30	31	31	31	31
	3.5	S	3.2	S	3.5	SW
JUN	30	30	30	30	30	30
	3.6	S	3.3	S	3.6	S
JUL	28	28	28	31	26	30
	3.3	SW	3.1	SW	3.6	SW
AUG	31	31	31	31	31	31
	2.8	S	2.5	S	2.7	S
SEP	30	30	30	30	30	30
	3.0	S	2.6	S	3.0	E
OCT	31	31	31	31	31	31
	3.7	S	3.1	S	3.4	S
NOV	30	30	25	27	30	30
	4.2	NW	3.2	S	4.2	NW
DEC	31	31	31	31	31	31
	3.6*	NW	3.1*	NW	3.8	W

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)
*** Predominant yearly or monthly direction.

TABLE A.14 1976 ANNUAL AND MONTHLY STATISTICS FOR LAMBERT FIELD METEOROLOGICAL PARAMETERS.

	MIXHT AM (Meters)	MIXHT PM (Meters)	MIN TEMP (Deg C)	MAX TEMP (Deg C)	%REL HUM (%)	PERCIPIT (in)	#DAYS PP (Avg)	07AM PRS (Mbs)	#DY CALM (Avg)
NUMBER	282	282	306	366	366	366	365	365	366
ARITH MEAN	507.7	1136.4	6.4	13.4	68.6	83***	5.5	0.0	1.0
ARITH SD	323.3	458.2	10.4	11.3	13.7	3.0	4.8	7.2	1.4
MAXIMUM	1500.0	1600.0	24.4	37.2	100.0	13	24.0	27.4	9.0
2ND HIGHEST	1455.3	1564.2	24.4	36.7	99.3	13	23.0	22.8	9.0
MINIMUM	143.0	143.0	-17.8	-13.9	28.4	3	1.0	-19.5	0.0
JAN NUMBER	22	22	31	31	31	31	30	30	31
ARITH MEAN	714.1	717.9	-6.8	3.0	74.3	7***	3.2	-0.1*	0.6
FEB	26	26	29	29	29	29	29	29	29
	575.6	951.7	0.3	12.8	68.1	7	3.8	-0.3**	0.2
MAR	25	25	31	31	31	31	31	31	31
	560.0	1045.9	3.2	15.7	74.3	13*	3.0	0.2	0.4
APR	22	22	30	30	30	30	30	30	30
	459.3	1274.2	7.4	20.1	64.7	7	3.1	0.1	0.6
MAY	21	21	31	31	31	31	31	31	31
	498.9	1246.0	10.0	22.3	65.5	13**	3.4	-0.4	0.9
JUN	22	22	30	30	30	30	30	30	30
	431.1*	1391.5	17.2	28.2	66.0	3	5.9	0.2	1.0
JUL	26	26	31	31	31	31	31	31	31
	411.9	1371.4	20.4*	32.4*	66.5	6	5.1	-0.1	0.7
AUG	25	25	31	31	31	31	31	31	31
	347.4	1363.6	17.5	29.6	67.9	6	3.9	0.3	2.5*
SEP	22	22	30	30	30	30	30	30	30
	431.0	1302.3**	13.5	26.8	65.2	6	6.2	-0.2	1.6
OCT	22	22	31	31	31	31	31	31	31
	401.5**	1147.0	4.5	16.9	71.1*	6	5.3	0.2	1.0
NOV	26	26	30	30	30	30	30	30	30
	502.2	1142.2*	-2.8	8.7	66.3**	3	10.4*	0.2	0.8
DEC	23	23	31	31	31	31	31	31	31
	661.0	660.1	-7.4	4.2	71.9	6	7.3	-0.0	1.1

* Month in which maximum occurs.
** Month in which second highest occurs.
(If the months coincide only one month is flagged.)
*** Total number of days of precipitation in the year or month.

APPENDIX B

MAPS OF PARTICULATE ELEMENTAL CONCENTRATIONS

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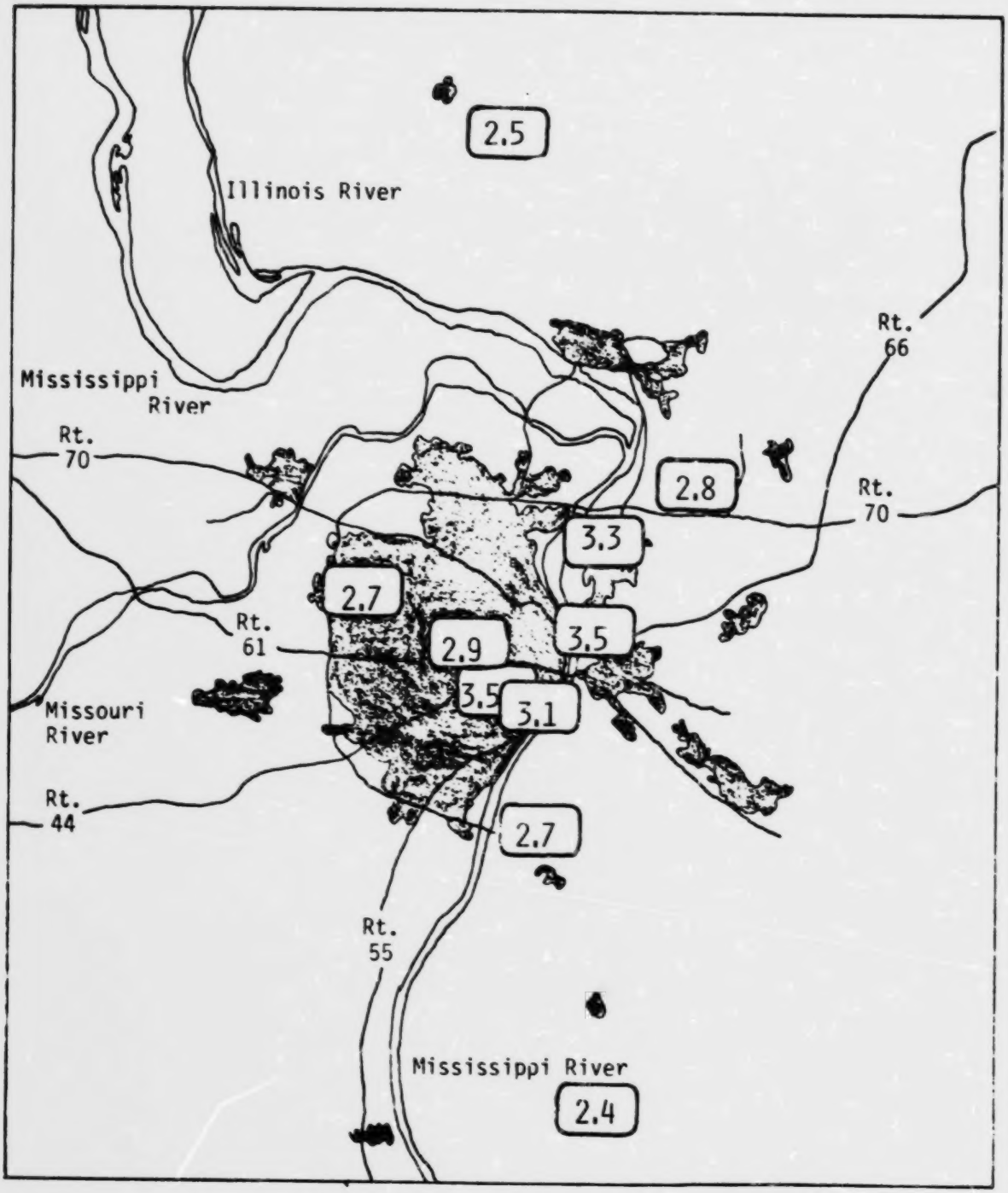

Figure B.1 Geographical distribution of particulate sulfur in the St. Louis area ($\mu g/m^3$).

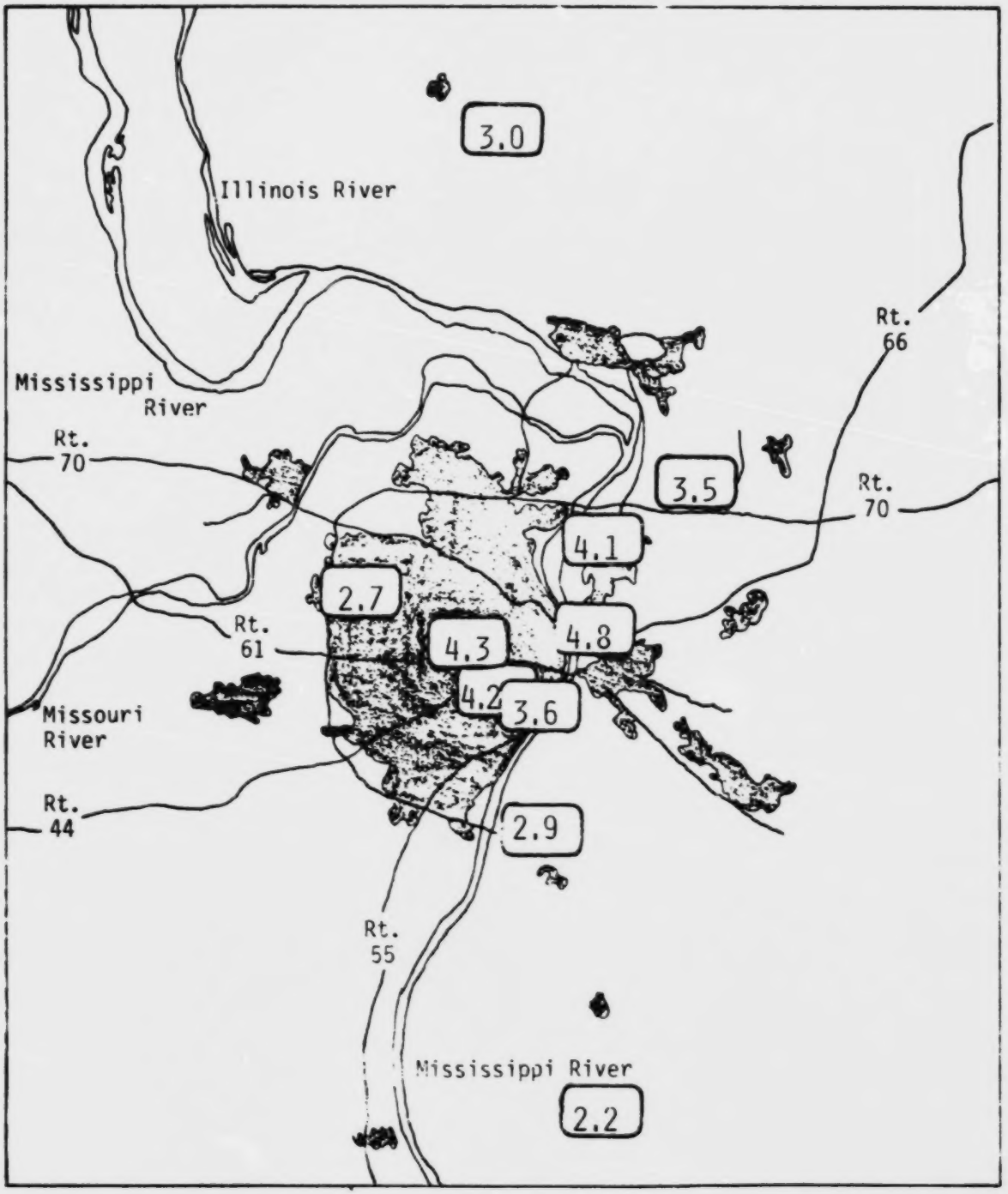

Figure B.2 Geographical distribution of particulate silicon in the St. Louis area ($\mu g/m^3$).

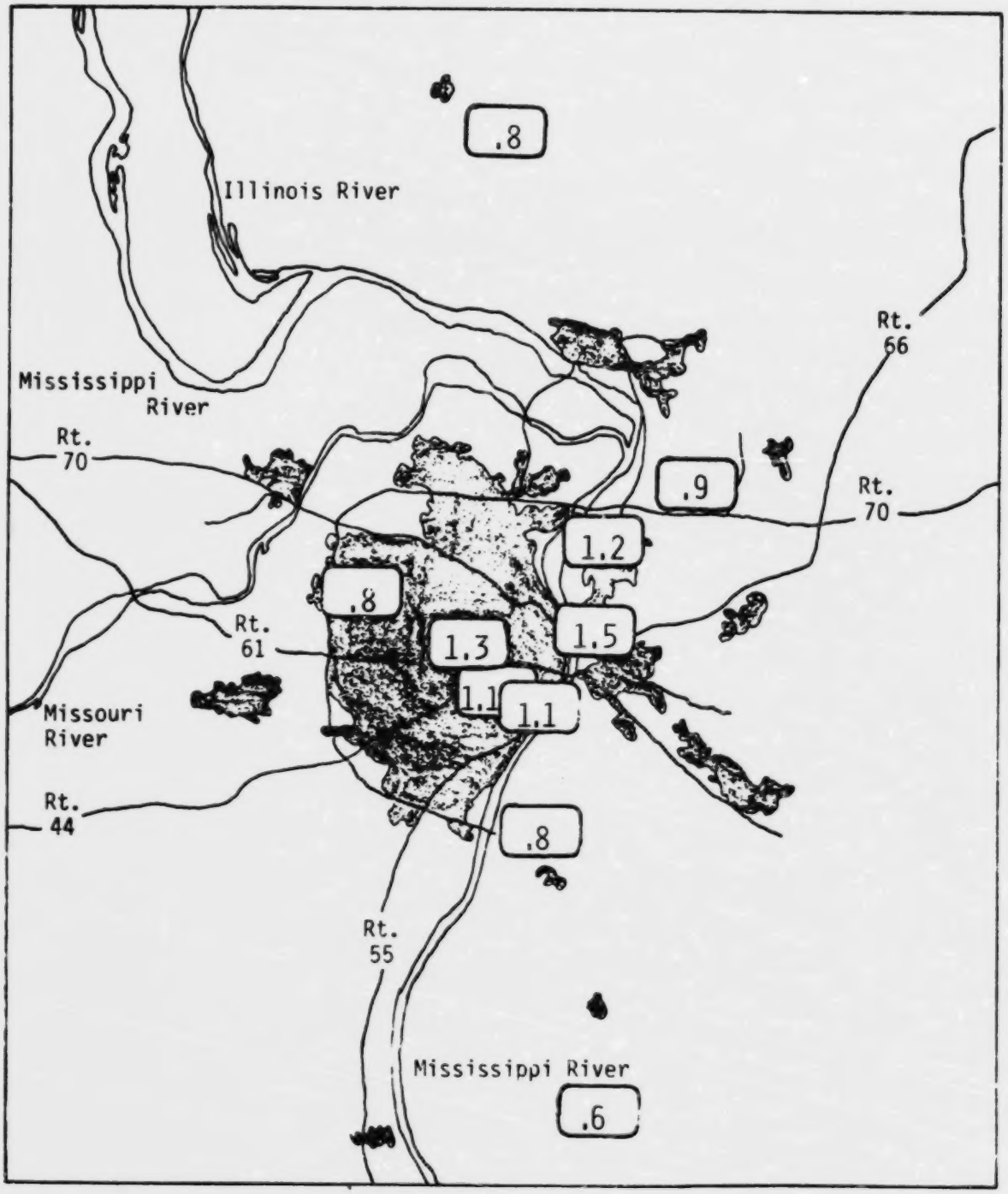

Figure B.3 Geographical distribution of particulate aluminum in the St. Louis area ($\mu g/m^3$).

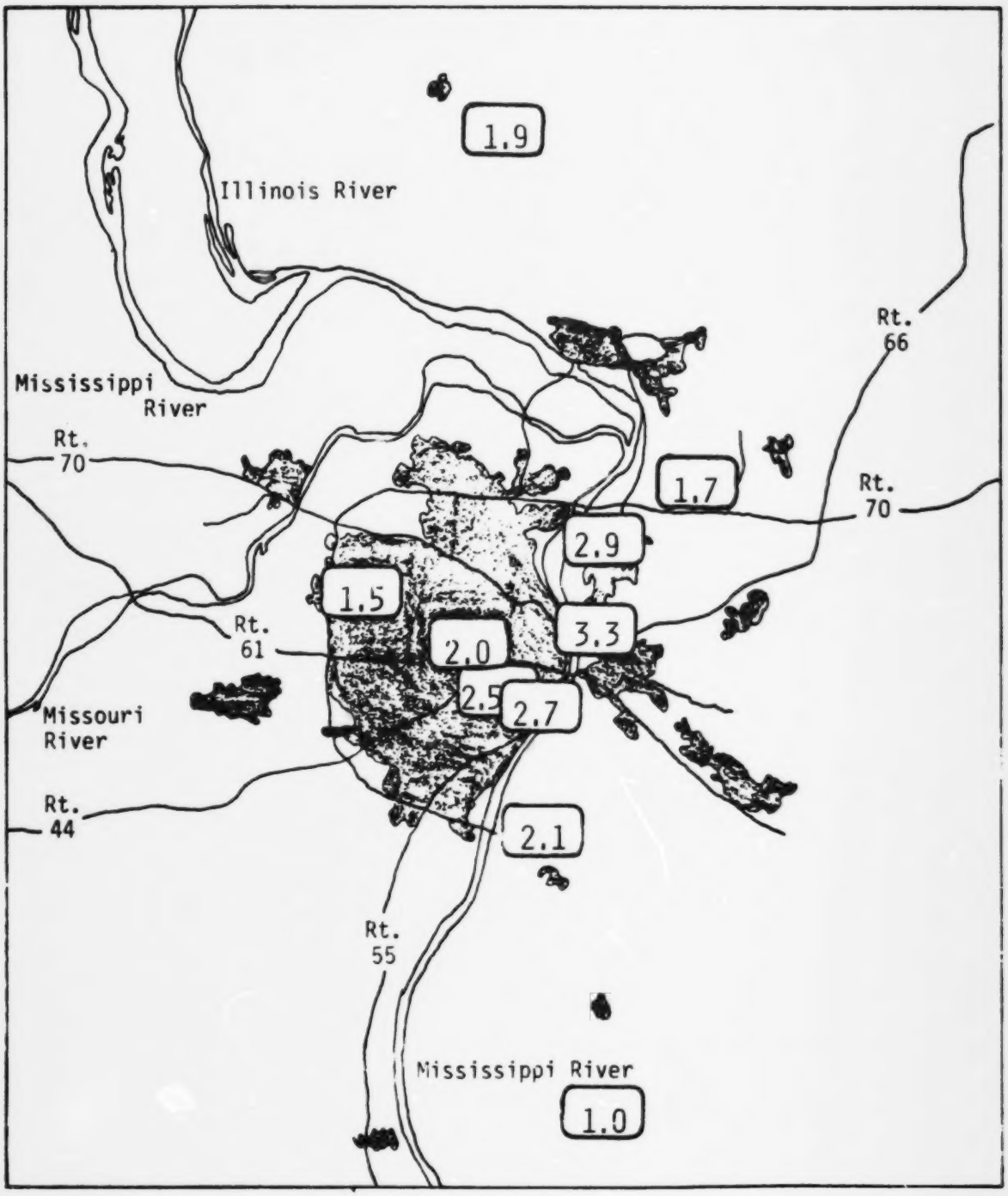

Figure B.4 Geographical distribution of particulate calcium in the St. Louis area ($\mu g/m^3$).

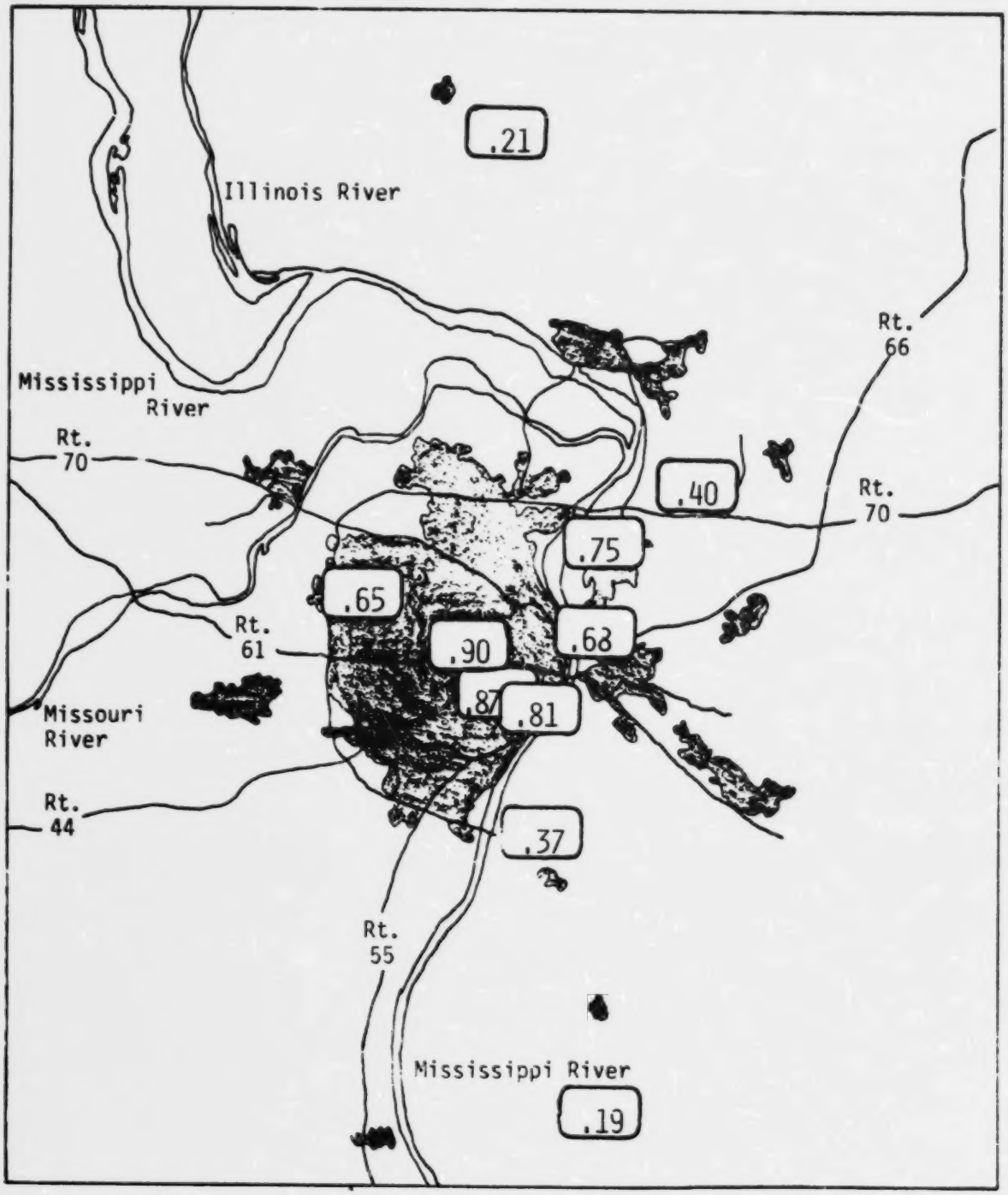

Figure B.5 Geographical distribution of particulate lead in the St. Louis area ($\mu g/m^3$).

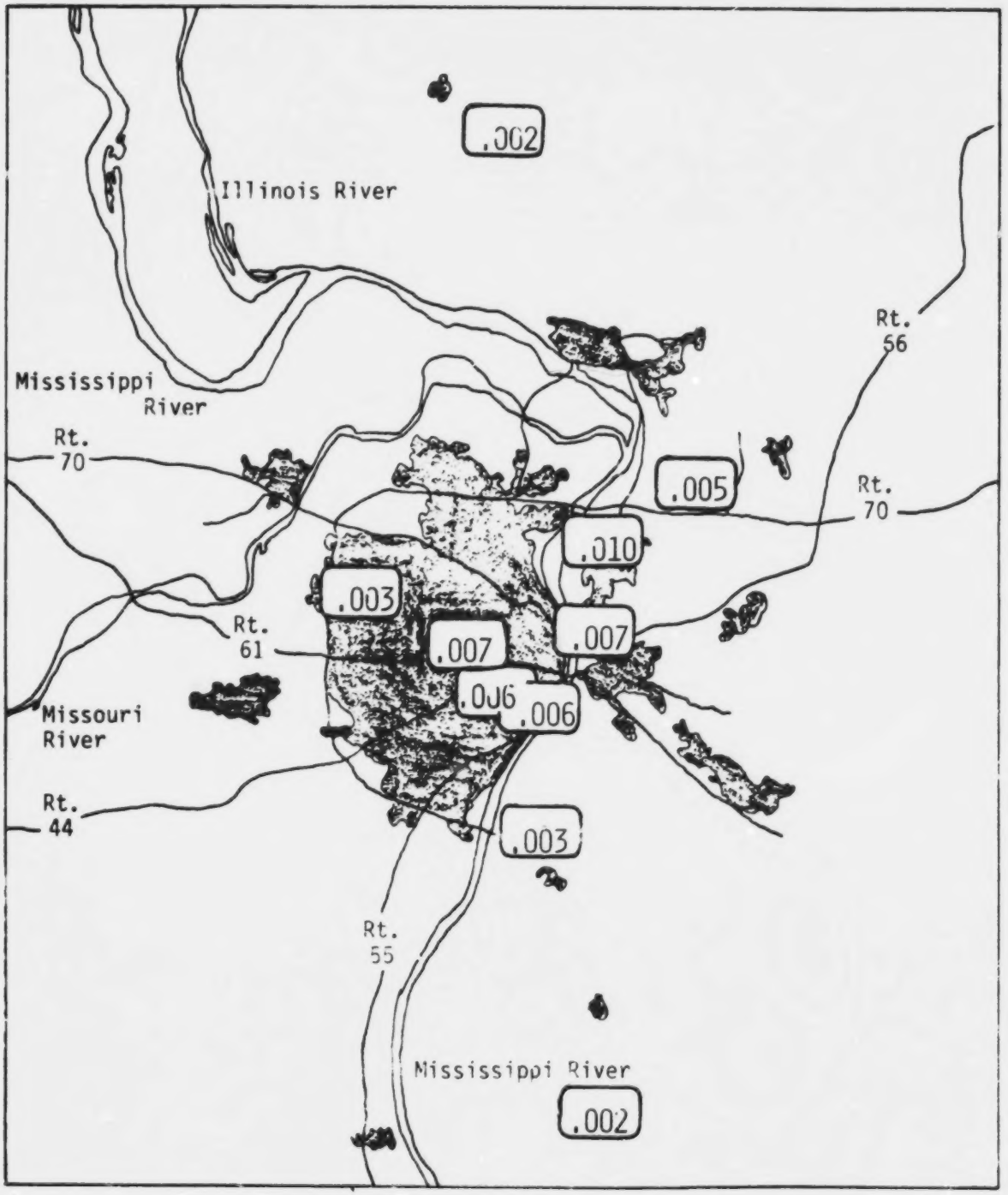

Figure B.6 Geographical distribution of particulate vanadium in the St. Louis area ($\mu g/m^3$).

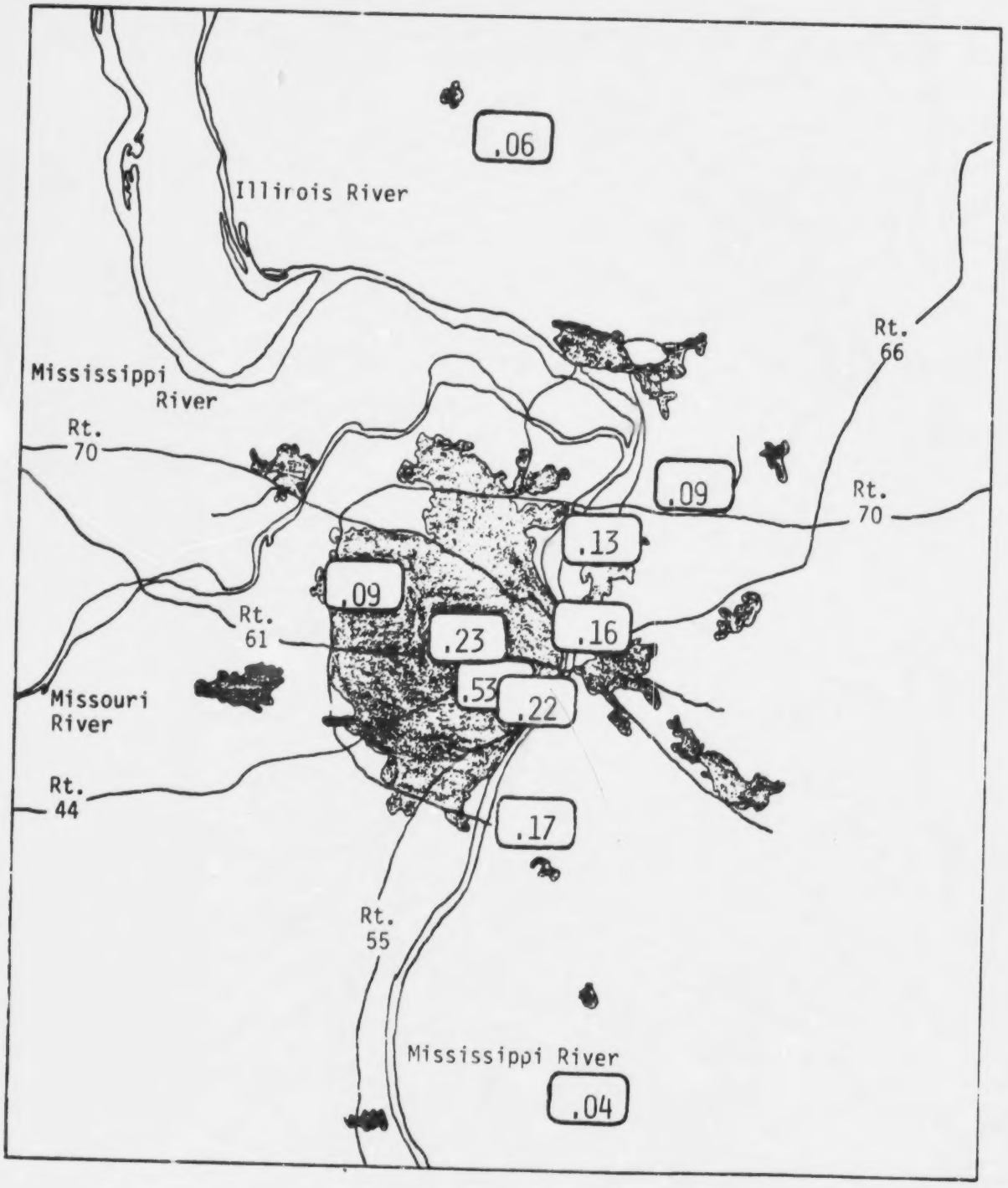

Figure B.7 Geographical distribution of particulate titanium in the St. Louis area ($\mu g/m^3$).

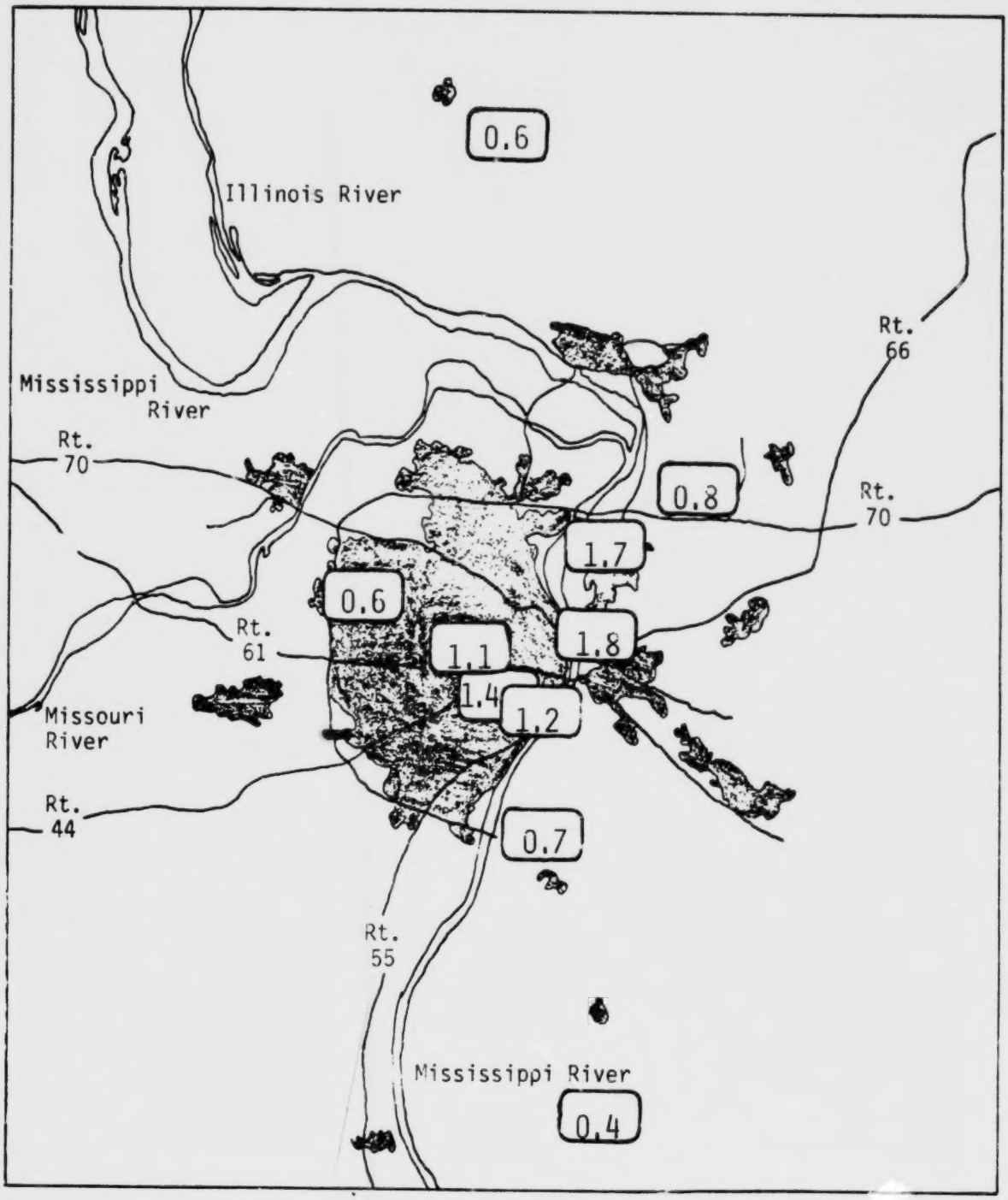

Figure B.8 Geographical distribution of particulate iron in the St. Louis area ($\mu g/m^3$).

APPENDIX C

TABLES RELATING PARTICULATE ELEMENT CONCENTRATIONS
TO SITE CHARACTERISTICS

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TABLE C.1 RELATIONSHIP OF PARTICULATE ELEMENT CONCENTRATIONS TO SITE CHARACTERISTICS.

Table C.1a Sulfur ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	3.1	3.2	3.4	3.3
Suburban	2.7	-----	-----	2.7	2.7
Rural	-----	-----	-----	2.5	2.5

Table C.1b Silicon ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	3.6	4.3	4.5	4.2
Suburban	2.7	-----	-----	3.2	3.0
Rural	-----	-----	-----	2.6	2.6

Table C.1c Aluminum ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	1.14	1.22	1.36	1.26
Suburban	0.80	-----	-----	0.88	0.85
Rural	----	-----	-----	0.69	0.69

Table C.1d Calcium ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	2.7	2.2	3.1	2.7
Suburban	1.5	-----	-----	1.9	1.7
Rural	-----	-----	-----	1.4	1.4

TABLE C.1 RELATIONSHIP OF PARTICULATE ELEMENT CONCENTRATIONS TO SITE CHARACTERISTICS (CONTINUED).

Table C.1e Lead ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	0.81	0.88	0.72	0.80
Suburban	0.65	-----	-----	0.38	0.47
Rural	-----	-----	-----	0.20	0.20

Table C.1f Vanadium ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	.006	.006	.009	.007
Suburban	.003	-----	-----	.004	.004
Rural	-----	-----	-----	.002	.002

Table C.1g Titanium ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	0.22	0.38	0.15	0.26
Suburban	0.09	-----	-----	0.13	0.12
Rural	-----	-----	-----	0.05	0.05

Table C.1h Iron ($\mu g/m^3$)

	Industrial	Commercial	Residential	Agricultural	All
Urban	-----	1.25	1.22	1.77	1.44
Suburban	0.62	-----	-----	0.73	0.69
Rural	-----	-----	-----	0.53	0.53

APPENDIX D

TABLES OF INTERSTATION CORRELATIONS

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TABLE D.1 CORRELATIONS AMONG STATIONS FOR TSP

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.75								
6	0.73	0.84							
8	0.71	0.68	0.59						
12	0.42	0.45	0.38	0.43					
15	0.63	0.77	0.73	0.64	0.49				
18	0.46	0.42	0.38	0.51	0.33	0.58			
20	0.54	0.73	0.66	0.58	0.35	0.63	0.45		
22	0.60	0.64	0.67	0.72	0.68	0.74	0.47	0.64	
24	0.51	0.54	0.50	0.57	0.41	0.60	0.48	0.63	0.64

TABLE D.2 CORRELATIONS AMONG STATIONS FOR IP

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.83								
6	0.79	0.89							
8	0.73	0.73	0.78						
12	0.68	0.74	0.87	0.76					
15	0.78	0.70	0.78	0.75	0.73				
18	0.79	0.83	0.87	0.71	0.75	0.75			
20	0.67	0.75	0.86	0.62	0.83	0.62	0.75		
22	0.77	0.75	0.84	0.82	0.81	0.81	0.77	0.70	
24	0.40	0.67	0.72	0.53	0.60	0.33	0.65	0.70	0.41

TABLE D.3 CORRELATIONS AMONG STATIONS FOR FINE

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.87								
6	0.84	0.90							
8	0.80	0.81	0.79						
12	0.79	0.85	0.90	0.78					
15	0.79	0.78	0.79	0.78	0.75				
18	0.87	0.88	0.89	0.76	0.82	0.84			
20	0.78	0.82	0.89	0.71	0.87	0.62	0.80		
22	0.74	0.76	0.83	0.82	0.80	0.77	0.79	0.79	
24	0.77	0.86	0.88	0.75	0.83	0.76	0.87	0.84	0.77

TABLE D.4 CORRELATIONS AMONG STATIONS FOR COARSE

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.70								
6	0.66	0.77							
8	0.68	0.62	0.74						
12	0.50	0.55	0.76	0.70					
15	0.69	0.52	0.71	0.67	0.64				
18	0.56	0.57	0.62	0.59	0.57	0.57			
20	0.56	0.59	0.69	0.60	0.70	0.64	0.73		
22	0.70	0.64	0.75	0.73	0.64	0.74	0.53	0.55	
24	0.01	0.31	0.30	0.27	0.18	0.03	0.29	0.36	0.08

TABLE D.5 CORRELATIONS AMONG STATIONS FOR SULFUR

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.93								
6	0.91	0.92							
8	0.92	0.91	0.91						
12	0.92	0.95	0.91	0.90					
15	0.89	0.90	0.80	0.85	0.89				
18	0.91	0.97	0.90	0.90	0.95	0.92			
20	0.91	0.94	0.96	0.90	0.97	0.85	0.94		
22	0.84	0.88	0.90	0.91	0.90	0.86	0.88	0.90	
24	0.87	0.93	0.88	0.85	0.89	0.84	0.94	0.89	0.84

TABLE D.6 CORRELATIONS AMONG STATIONS FOR SILICON

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.77								
6	0.79	0.86							
8	0.76	0.81	0.79						
12	0.57	0.65	0.72	0.71					
15	0.73	0.72	0.71	0.75	0.69				
18	0.73	0.78	0.71	0.73	0.70	0.68			
20	0.71	0.80	0.79	0.72	0.71	0.72	0.82		
22	0.77	0.78	0.77	0.76	0.72	0.77	0.72	0.83	
24	0.38	0.47	0.50	0.44	0.30	0.37	0.41	0.44	0.43

TABLE D.7 CORRELATIONS AMONG STATIONS FOR ALUMINUM

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.65								
6	0.63	0.85							
8	0.63	0.72	0.74						
12	0.44	0.55	0.67	0.66					
15	0.63	0.69	0.68	0.73	0.61				
18	0.64	0.77	0.72	0.66	0.58	0.70			
20	0.62	0.77	0.78	0.64	0.59	0.67	0.79		
22	0.62	0.68	0.76	0.74	0.63	0.71	0.69	0.77	
24	0.26	0.35	0.46	0.38	0.18	0.28	0.33	0.40	0.39

TABLE D-8. CORRELATIONS AMONG STATIONS FOR CALCIUM

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.79								
6	0.79	0.88							
8	0.79	0.76	0.71						
12	0.58	0.69	0.75	0.63					
15	0.71	0.63	0.60	0.64	0.44				
18	0.64	0.67	0.64	0.57	0.54	0.63			
20	0.66	0.67	0.72	0.59	0.69	0.50	0.69		
22	0.71	0.47	0.52	0.57	0.46	0.61	0.40	0.52	
24	0.26	0.43	0.43	0.40	0.45	0.27	0.26	0.42	0.07

TABLE D.9 CORRELATIONS AMONG STATIONS FOR LEAD

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.84								
6	0.71	0.71							
8	0.71	0.48	0.20						
12	0.78	0.69	0.59	0.45					
15	0.56	0.64	0.33	0.49	0.36				
18	0.57	0.50	0.60	0.24	0.25	0.45			
20	0.54	0.53	0.71	0.15	0.80	0.22	0.31		
22	0.29	0.21	0.09	0.42	0.43	0.19	-0.00	0.19	
24	0.19	0.28	0.30	0.11	0.17	0.38	0.27	0.30	-0.17

TABLE D. 10 CORRELATIONS AMONG STATIONS FOR VANADIUM

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.13								
6	0.24	0.37							
8	0.25	0.26	-0.09						
12	0.34	0.28	0.15	0.30					
15	0.10	0.23	0.04	0.16	0.10				
18	0.02	0.38	0.18	0.14	0.14	0.29			
20	0.07	0.34	0.25	0.26	0.49	0.25	0.37		
22	-0.14	0.13	-0.14	0.27	0.23	0.02	0.12	0.32	
24	-0.01	0.36	0.06	0.04	0.24	0.24	0.31	0.37	0.30

TABLE D.11 CORRELATIONS AMONG STATIONS FOR TITANIUM

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.87								
6	0.23	0.38							
8	0.77	0.71	0.49						
12	0.09	0.17	0.25	0.13					
15	0.76	0.58	0.24	0.67	0.06				
18	-0.03	-0.05	-0.11	-0.13	-0.07	0.00			
20	0.01	0.05	0.11	0.09	0.33	0.01	-0.08		
22	0.36	0.38	0.67	0.53	0.33	0.34	-0.16	0.21	
24	0.05	0.07	0.14	0.16	0.08	0.23	0.17	0.26	0.43

TABLE D.12 CORRELATIONS AMONG STATIONS FOR IRON

STATION	3	5	6	8	12	15	18	20	22
3									
5	0.70								
6	0.53	0.59							
8	0.40	0.51	0.52						
12	0.36	0.43	0.44	0.56					
15	0.66	0.51	0.44	0.41	0.38				
18	0.47	0.41	0.26	-0.01	0.31	0.50			
20	0.48	0.58	0.47	0.25	0.60	0.41	0.51		
22	0.57	0.51	0.66	0.67	0.60	0.54	0.27	0.54	
24	0.24	0.36	0.44	0.10	0.17	0.24	0.37	0.46	0.33

TABLE D.13 INTERSTATION DISTANCES (km)

STATION	3	5	6	8	12	15	18	20	22
3									
5	7.20								
6	10.20	5.20							
8	8.70	15.40	16.70						
12	13.70	10.70	5.80	17.70					
15	18.00	25.20	27.40	11.00	28.70				
18	19.70	13.20	15.00	28.30	19.90	37.30			
20	24.80	22.70	17.70	25.90	12.00	36.00	30.20		
22	47.10	52.80	51.70	38.70	48.90	35.00	66.00	47.10	
24	46.00	40.30	42.40	54.60	46.90	61.80	27.40	55.90	93.00

APPENDIX E

METHODOLOGY FOR THE REGIONAL UPWIND/DOWNWIND ANALYSIS

Stations 122, 108, 103, 105, 118, and 124 are considered to lie in a north-south line across the city. Only days with either a predominantly northerly or southerly wind-flow are used in the analysis.

The following procedure is used to define a predominantly northerly flow (a similar one is used for southerly flows):

- An individual station is considered to have a northerly wind-flow pattern if at least 75% of its wind for the day is from the north, northeast, or northwest direction (within 67.5 degrees of north).
- A day is considered to have a predominantly northern wind-flow if one of the two upper air samples has a northern wind-flow pattern, if all of the six stations under study have northern wind-flow patterns, and if eight of the ten RAMS stations have northern wind-flow patterns.

The above procedure represents a compromise. Stricter data base restrictions would guarantee that all accepted data have the correct wind-flow but would accept too few data to permit a statistically robust analysis. In contrast, more lenient restrictions would accept a large portion of the data base including days with the wrong wind-flow.

Table E.1 gives average particulate concentrations for each of the six stations by pollutant. For northerly flow, the data used to compute the averages are the initial average concentration at station 122 (northern-most) and the average difference between each station and the next one to the south. The averages at each station are then determined by the initial average adjusted by these average differences. Using this method leads to a much more robust data base than would exist if one required all six stations to have a non-missing measurement before a day could be included.

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TABLE E.1 PARTICULATE CONCENTRATIONS ($\mu g/m^3$) FOR NORTH AND SOUTH FLOWS.

(Wind from the North)

STATION	DISTANCE (KM)	FINE	IP	SILICON	SULFUR	LEAD	TSP
122	0.0	12.1	25.7	2.66	1.90	.09	44.9
108	38.7	14.4	29.7	3.18	2.38	.30	46.4
103	47.4	22.8	46.7	3.67	2.68	.32	71.5
105	54.6	19.7	40.5	3.18	2.67	.60	67.0
118	67.8	17.1	35.3	3.03	2.54	.30	68.5
124	117.2	16.1	27.2	1.93	1.96	.15	45.4

(Wind from South)

STATION	DISTANCE (KM)	FINE	IP	SILICON	SULFUR	LEAD	TSP
124	0.0	16.6	29.3	2.10	2.41	.11	56.3
118	49.4	18.8	32.8	2.32	2.83	.23	77.3
105	62.6	23.8	46.3	3.10	3.29	.53	72.5
103	69.8	28.0	54.8	4.03	3.60	.55	89.2
108	78.5	28.9	56.6	4.05	3.99	.74	88.8
122	117.2	21.9	39.8	2.71	3.36	.36	59.0

APPENDIX F

DETAILED DATA ON HEBDOMADAL AND DIURNAL PATTERNS
AT SITES 103 AND 105, ORGANIZED QUARTERLY AND ANNUALLY

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TABLE F.1 HEBDOMADAL AND DIURNAL PATTERNS FOR IP.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL MASS IN MICROGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	41.2	58.9	81.5	49.5	54.6	30.0	45.9	45.7	45.7	41.0
SUN	0600	39.9	50.8	57.8	41.3	47.1	20.9	44.1	39.9	38.3	35.1
SUN	1200	33.6	52.7	52.4	30.9	42.3	23.2	33.4	33.6	28.5	29.9
SUN	1800	50.9	78.1	59.4	59.2	62.2	40.4	50.3	44.9	34.7	42.9
MON	0000	39.5	71.9	67.8	36.9	55.4	33.8	54.7	43.7	45.6	44.1
MON	0600	47.0	78.6	76.8	37.7	61.5	42.6	61.1	38.1	49.2	48.2
MON	1200	42.8	66.7	68.4	46.2	57.6	36.8	52.1	49.2	37.8	43.6
MON	1800	35.7	91.4	70.4	58.5	65.0	26.5	62.8	53.6	42.9	45.5
TUE	0000	43.7	90.3	75.8	50.5	65.7	30.9	57.5	53.3	39.0	44.9
TUE	0600	50.7	87.9	75.6	58.9	68.4	39.1	65.1	68.4	52.0	56.3
TUE	1200	54.0	77.8	82.9	33.8	61.0	34.4	55.8	66.8	35.3	47.3
TUE	1800	49.4	99.9	113.9	49.7	77.1	35.8	60.0	67.3	40.0	51.2
WED	0000	43.1	79.6	77.7	44.7	58.8	28.3	62.2	79.1	35.7	50.0
WED	0600	49.7	83.2	79.9	46.5	62.5	39.5	55.9	73.5	42.0	52.7
WED	1200	43.0	63.8	65.2	47.1	54.8	29.6	55.9	49.3	36.5	43.4
WED	1800	59.8	83.5	56.3	44.1	60.0	29.8	65.6	52.5	33.2	46.1
THU	0000	43.9	84.4	59.4	51.1	59.0	35.3	51.8	54.1	30.8	44.0
THU	0600	47.6	74.6	70.4	48.6	60.7	41.9	60.2	65.2	37.6	52.3
THU	1200	50.0	68.8	65.2	39.5	55.5	36.8	49.8	50.7	31.0	43.1
THU	1800	59.7	95.9	84.8	42.0	69.7	39.8	61.5	58.9	44.3	51.6
FRI	0000	41.8	82.4	85.4	47.6	63.6	28.5	58.8	55.3	49.4	47.2
FRI	0600	52.5	77.9	84.4	58.7	68.1	43.6	66.6	60.7	51.8	56.3
FRI	1200	44.3	64.8	54.8	45.9	52.1	32.6	61.7	54.3	58.6	51.2
FRI	1800	53.1	82.4	60.8	67.6	66.6	28.2	67.3	60.0	80.8	56.6
SAT	0000	39.3	65.5	66.4	59.1	57.4	22.8	53.6	50.6	48.5	42.9
SAT	0600	33.6	57.4	61.6	60.6	52.3	24.1	48.7	47.8	50.5	41.8
SAT	1200	37.5	61.0	52.6	48.9	49.5	25.3	46.7	45.1	45.8	39.9
SAT	1800	39.0	64.8	57.4	66.7	55.9	28.9	45.3	41.5	55.0	41.2

DIURNAL VARIATION OF DICHOTOMOUS TOTAL MASS IN MICROGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	41.8	76.0	72.5	49.3	59.4	29.8	54.8	54.4	41.5	44.9
0600	45.6	72.6	72.2	51.5	60.1	35.5	57.7	56.8	46.1	49.0
1200	43.6	65.0	64.1	42.0	53.6	31.3	50.9	49.8	39.2	42.9
1800	49.5	84.9	73.6	54.5	65.6	32.6	59.1	54.6	46.4	48.0

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TABLE F.2 HEBDOMADAL AND DIURNAL PATTERNS FOR FINE.

HEBDOMADAL VARIATION OF DICHOTOMOUS FINE FRACTION MASS IN MICROGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	20.1	29.4	31.6	26.3	26.2	15.1	20.8	25.2	23.4	20.8
SUN	0600	18.4	26.6	29.2	18.8	22.9	11.6	21.6	23.8	20.0	18.9
SUN	1200	13.8	26.7	21.6	11.4	18.6	7.4	17.1	21.9	13.7	15.0
SUN	1800	24.6	34.8	27.8	39.3	30.9	17.9	22.5	26.4	21.6	21.7
MON	0000	23.9	34.2	33.3	18.8	28.3	17.7	25.3	26.2	22.7	22.7
MON	0600	21.9	36.6	32.8	16.2	27.8	19.0	29.0	17.8	28.9	23.5
MON	1200	19.2	30.3	33.5	19.1	26.3	16.0	25.1	26.6	19.3	21.6
MON	1800	20.8	38.4	32.8	22.0	29.0	13.6	29.2	26.3	21.4	22.4
TUE	0000	24.4	38.8	35.6	22.2	30.5	18.2	29.2	29.3	20.8	24.4
TUE	0600	26.1	40.2	35.4	27.4	32.4	18.4	29.1	34.4	27.3	27.3
TUE	1200	18.4	35.9	34.3	14.9	25.2	12.8	27.0	36.0	17.3	22.9
TUE	1800	22.0	42.2	44.7	23.2	32.3	15.2	29.9	37.6	20.4	26.1
WED	0000	21.1	42.0	33.7	18.7	27.4	13.5	31.8	42.3	21.4	26.7
WED	0600	21.4	38.0	34.4	21.4	27.8	16.0	27.2	38.0	19.5	25.2
WED	1200	17.2	29.6	32.3	20.1	24.9	11.3	24.7	27.9	17.3	20.7
WED	1800	23.2	35.5	30.3	22.5	27.8	14.2	30.3	32.3	17.3	23.8
THU	0000	19.2	40.7	30.6	22.6	28.0	21.2	31.3	31.5	17.3	26.0
THU	0600	21.8	34.7	32.0	21.5	27.5	21.2	29.7	34.7	18.0	26.6
THU	1200	20.8	28.8	28.0	14.9	22.8	15.4	21.4	27.2	15.1	20.2
THU	1800	28.9	38.0	39.9	18.2	31.0	19.1	28.5	30.4	18.9	24.5
FRI	0000	21.0	39.9	44.7	21.4	31.3	13.6	29.9	32.2	22.7	24.7
FRI	0600	21.1	38.1	40.9	22.0	30.3	19.0	32.3	30.1	20.9	26.2
FRI	1200	17.5	32.3	30.9	19.1	24.8	12.9	29.6	27.6	24.0	23.5
FRI	1800	22.8	37.5	35.4	27.9	30.8	12.7	34.3	34.6	35.1	28.7
SAT	0000	19.3	32.9	35.7	27.6	28.8	11.2	26.8	28.5	24.9	22.6
SAT	0600	15.8	30.9	31.6	29.7	26.8	9.5	25.3	25.7	26.7	21.3
SAT	1200	15.7	28.0	25.4	24.3	23.0	10.1	21.1	25.4	22.7	19.6
SAT	1800	17.5	32.1	31.5	29.8	27.2	13.6	19.6	22.2	28.6	20.3

DIURNAL VARIATION OF DICHOTOMOUS FINE FRACTION MASS IN MICROGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	21.2	36.7	35.2	22.6	28.7	15.6	27.9	30.5	21.7	24.0
0600	20.9	35.0	33.8	22.7	28.0	16.2	27.9	29.4	22.9	24.2
1200	17.4	30.2	29.9	17.8	23.8	12.3	23.8	27.4	18.5	20.6
1800	22.8	36.9	35.1	25.0	29.8	15.1	27.8	30.1	23.0	24.0

TABLE F.3 HEBDOMADAL AND DIURNAL PATTERNS FOR COARSE.

HEBDOMADAL VARIATION OF DICHOTOMOUS COARSE FRACTION MASS IN MICROGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	21.2	29.4	51.2	23.1	29.9	14.9	24.4	19.9	22.4	20.1
SUN	0600	21.5	25.5	28.7	21.8	24.3	9.3	22.1	16.9	16.0	15.9
SUN	1200	19.9	25.2	29.9	19.6	23.4	15.3	16.6	11.9	15.7	14.8
SUN	1800	26.3	43.0	31.6	21.1	31.4	22.5	26.3	16.6	13.1	20.4
MON	0000	17.3	37.7	34.5	21.8	27.7	16.2	28.9	17.1	21.6	20.9
MON	0600	25.1	39.1	44.0	22.2	32.8	23.6	31.1	20.7	20.3	24.5
MON	1200	21.6	34.3	34.1	25.6	29.6	21.0	25.3	21.5	21.0	22.2
MON	1800	14.9	50.9	37.6	35.3	35.5	12.9	32.6	25.9	21.5	22.9
TUE	0000	19.3	49.9	40.1	27.0	34.6	12.8	28.0	24.0	18.2	20.7
TUE	0600	24.5	46.5	40.1	30.4	35.8	20.8	35.2	34.5	24.7	29.0
TUE	1200	35.6	39.8	47.1	19.1	35.1	21.6	27.4	30.3	18.0	24.3
TUE	1800	26.9	57.2	69.2	26.9	44.5	20.6	29.9	34.5	19.1	26.2
WED	0000	21.9	35.5	43.9	23.7	30.1	14.7	28.5	34.5	15.5	23.4
WED	0600	28.3	43.7	45.6	25.2	34.5	23.5	29.2	36.8	22.5	28.3
WED	1200	25.8	35.5	33.5	25.9	30.4	18.3	30.6	23.2	19.2	23.1
WED	1800	36.6	45.1	26.0	21.6	31.9	15.6	34.6	19.6	17.3	22.2
THU	0000	24.6	40.9	28.8	27.8	30.3	13.5	26.1	22.0	13.2	19.1
THU	0600	26.0	39.0	38.4	25.9	32.6	20.7	30.1	32.2	19.6	26.3
THU	1200	29.1	38.3	36.1	24.1	32.2	22.0	28.5	24.0	18.3	23.6
THU	1800	30.8	53.7	44.9	23.8	38.4	20.9	33.5	26.6	25.3	26.9
FRI	0000	20.8	40.6	40.7	26.1	32.0	14.9	26.6	22.1	26.8	22.0
FRI	0600	30.6	37.9	42.7	36.7	37.0	23.6	33.8	31.4	30.9	30.0
FRI	1200	26.8	30.9	24.1	26.3	27.2	19.7	32.0	26.2	34.6	27.7
FRI	1800	30.3	44.4	34.6	39.8	37.8	15.5	34.2	25.6	44.6	28.4
SAT	0000	20.1	33.2	30.5	32.6	29.2	11.6	27.1	20.4	23.6	20.3
SAT	0600	17.8	26.5	33.6	33.0	27.0	14.5	23.7	21.6	23.8	20.6
SAT	1200	21.8	31.8	27.0	24.6	26.3	15.2	25.3	17.5	24.1	20.0
SAT	1800	21.4	32.5	33.5	36.9	30.3	15.3	24.9	20.5	24.1	20.8

DIURNAL VARIATION OF DICHOTOMOUS COARSE FRACTION MASS IN MICROGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	20.8	38.3	37.8	26.4	30.7	14.1	27.1	23.0	19.8	20.9
0600	24.7	36.9	38.8	28.6	32.1	19.3	29.4	28.0	22.7	25.0
1200	26.0	33.8	33.6	23.8	29.4	19.0	26.7	22.2	21.6	22.4
1800	26.7	46.8	40.3	29.3	36.0	17.5	31.0	24.4	23.2	24.1

TABLE F.4 HEBDOMADAL AND DIURNAL PATTERNS FOR SULFUR.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL SULFUR IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	2147.	2935.	4279.	2564.	2850.	2077.	2501.	3724.	2786.	2755.
SUN	0600	1872.	3292.	3994.	2475.	2851.	1647.	2650.	4142.	2699.	2736.
SUN	1200	1515.	2968.	3791.	2430.	2613.	1431.	2278.	4448.	2405.	2598.
SUN	1800	2160.	2786.	4417.	2744.	2860.	2031.	3376.	4342.	2666.	3071.
MON	0000	2285.	3022.	4462.	2938.	3060.	2379.	2557.	4051.	2751.	2862.
MON	0600	2342.	4033.	5481.	3558.	3710.	2266.	3763.	3332.	2934.	3052.
MON	1200	2105.	3725.	6005.	2561.	3714.	2075.	3455.	5207.	2275.	3187.
MON	1800	2161.	4087.	4634.	3030.	3551.	1806.	3066.	4690.	2211.	2898.
TUE	0000	3138.	5184.	5184.	2669.	4069.	2730.	3291.	4716.	2057.	3233.
TUE	0600	3145.	5192.	5750.	3365.	4360.	2492.	3719.	5598.	2554.	3635.
TUE	1200	2228.	4830.	7107.	1934.	3982.	1830.	4103.	6739.	1790.	3562.
TUE	1800	2191.	4930.	8307.	2245.	4292.	1536.	4067.	6085.	1837.	3371.
WED	0000	2656.	4405.	4701.	2092.	3308.	1725.	4275.	6084.	1735.	3376.
WED	0600	2421.	4803.	5390.	2754.	3687.	2296.	3949.	6379.	1938.	3601.
WED	1200	1982.	3756.	5769.	2161.	3500.	1933.	3902.	5852.	1618.	3431.
WED	1800	2815.	4385.	4477.	2147.	3477.	1935.	3924.	5138.	1367.	3095.
THU	0000	2413.	4972.	4616.	2144.	3569.	2842.	3092.	4713.	1778.	3164.
THU	0600	2523.	4394.	4876.	2385.	3627.	2595.	4056.	5277.	2034.	3598.
THU	1200	2601.	3422.	4660.	1905.	3207.	2171.	3140.	4202.	1494.	2857.
THU	1800	3308.	4825.	6267.	1646.	4027.	2509.	3422.	4768.	1738.	3207.
FRI	0000	2361.	4687.	5839.	2018.	3674.	1992.	3572.	4851.	2056.	3187.
FRI	0600	2668.	4104.	6315.	2256.	3742.	2391.	3940.	5239.	1767.	3450.
FRI	1200	2061.	4057.	5294.	2415.	3410.	1868.	4261.	4908.	1812.	3329.
FRI	1800	2469.	4928.	5073.	2760.	3784.	1843.	3742.	5046.	2571.	3353.
SAT	0000	2524.	3596.	4769.	2823.	3374.	1604.	3053.	3673.	2519.	2679.
SAT	0600	1535.	3676.	4001.	3862.	3202.	1702.	2945.	3932.	2808.	2849.
SAT	1200	1852.	3796.	4570.	4076.	3440.	1572.	3086.	4189.	2784.	2889.
SAT	1800	2031.	3386.	3181.	3288.	2922.	1771.	2359.	3622.	2625.	2573.

DIURNAL VARIATION OF DICHOTOMOUS TOTAL SULFUR IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	2504.	4124.	4885.	2407.	3438.	2173.	3192.	4535.	2197.	3040.
0600	2341.	4223.	5115.	2891.	3601.	2188.	3584.	4858.	2363.	3279.
1200	2042.	3801.	5429.	2426.	3435.	1840.	3478.	5061.	2000.	3133.
1800	2435.	4214.	5351.	2484.	3602.	1916.	3428.	4805.	2089.	3062.

TABLE F.5 HEBDOMADAL AND DIURNAL PATTERNS FOR SILICON.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL SILICON IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	3631.	4262.	7576.	3303.	4437.	2117.	3099.	3967.	2700.	2976.
SUN	0600	3881.	3116.	5076.	3283.	3807.	1287.	2901.	3327.	2409.	2441.
SUN	1200	3200.	3383.	7932.	3556.	4345.	1844.	2273.	2757.	2378.	2284.
SUN	1800	3273.	6911.	5568.	3493.	4854.	3039.	3610.	2729.	2352.	3014.
MON	0000	1644.	4771.	5598.	3249.	3680.	1747.	3460.	3026.	2670.	2687.
MON	0600	2865.	4685.	7456.	3632.	4487.	2763.	4237.	3172.	3136.	3348.
MON	1200	2789.	5130.	5226.	4240.	4437.	2743.	3901.	4009.	3298.	3461.
MON	1800	2002.	6881.	6063.	5200.	5134.	1381.	4890.	4007.	3647.	3422.
TUE	0000	2923.	5790.	6068.	4075.	4732.	2289.	3715.	3893.	2806.	3203.
TUE	0600	3270.	6255.	6536.	4773.	5206.	2836.	4727.	5431.	3837.	4224.
TUE	1200	6476.	6147.	6488.	3150.	5516.	3516.	3928.	5439.	2741.	3891.
TUE	1800	4054.	8357.	7793.	3572.	5856.	3276.	5689.	5755.	2408.	4320.
WED	0000	2836.	4788.	6143.	3575.	4129.	2343.	4533.	5299.	2369.	3590.
WED	0600	4719.	5697.	6805.	3903.	5129.	3365.	4997.	6426.	3153.	4462.
WED	1200	3680.	6063.	6151.	4935.	5285.	2823.	4785.	4907.	3168.	3967.
WED	1800	4860.	6645.	4899.	3939.	5067.	3559.	5140.	4140.	2847.	3987.
THU	0000	3064.	4906.	5073.	3283.	4131.	2356.	3876.	3881.	2812.	3249.
THU	0600	4098.	5235.	5892.	3913.	4849.	2999.	4096.	5332.	3149.	3947.
THU	1200	4300.	5969.	5833.	4309.	5169.	3140.	4247.	5136.	2954.	3945.
THU	1800	3903.	5611.	6546.	3712.	4965.	2798.	4991.	4749.	2314.	3820.
FRI	0000	2839.	3941.	5722.	4373.	4453.	1817.	3606.	3671.	4570.	3278.
FRI	0600	5801.	4865.	5856.	7139.	5928.	3346.	4658.	5153.	6094.	4726.
FRI	1200	3861.	4647.	4483.	4379.	4346.	3816.	4728.	4068.	5880.	4518.
FRI	1800	4522.	5735.	5234.	5435.	5262.	3254.	4805.	4410.	6716.	4577.
SAT	0000	2248.	4341.	5334.	4629.	4093.	1803.	3215.	3571.	4256.	3102.
SAT	0600	2879.	4000.	5541.	4505.	4086.	2536.	3255.	3863.	3928.	3341.
SAT	1200	5089.	4989.	5032.	3922.	4792.	3597.	3913.	3537.	3307.	3614.
SAT	1800	4134.	5851.	6257.	4999.	5215.	3000.	3750.	3977.	3450.	3540.

DIURNAL VARIATION OF DICHOTOMOUS TOTAL SILICON IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	2750.	4691.	5985.	3821.	4250.	2059.	3643.	3903.	3140.	3161.
0600	3878.	4851.	6105.	4576.	4797.	2722.	4130.	4691.	3710.	3795.
1200	4260.	5213.	5836.	4108.	4864.	3069.	3988.	4287.	3394.	3691.
1800	3815.	6560.	6060.	4330.	5208.	2890.	4714.	4286.	3323.	3817.

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TABLE F.6 HEBDOMADAL AND DIURNAL PATTERNS FOR ALUMINUM.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL ALUMINUM IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	1442.	1033.	2000.	1461.	1421.	654.	805.	1085.	1051.	880.
SUN	0600	1817.	945.	1505.	1179.	1375.	401.	892.	1146.	950.	821.
SUN	1200	1229.	909.	1876.	1100.	1249.	507.	615.	970.	852.	712.
SUN	1800	1003.	2158.	1615.	1189.	1508.	976.	1056.	1020.	1023.	1017.
MON	0000	549.	1357.	1696.	1354.	1176.	669.	996.	1085.	1071.	925.
MON	0600	811.	1503.	1953.	1514.	1377.	864.	1400.	1159.	1087.	1124.
MON	1200	842.	1639.	1681.	1484.	1438.	826.	1171.	1424.	1192.	1141.
MON	1800	713.	1818.	1843.	1750.	1541.	421.	1271.	1376.	1211.	1046.
TUE	0000	883.	1615.	1888.	1337.	1429.	736.	1055.	1279.	869.	993.
TUE	0600	1221.	1807.	2018.	1786.	1696.	941.	1333.	1935.	1526.	1430.
TUE	1200	2516.	1729.	2139.	1303.	1909.	1062.	1010.	1835.	1183.	1253.
TUE	1800	1428.	2457.	2637.	1342.	1939.	908.	1397.	1960.	915.	1291.
WED	0000	918.	1210.	2136.	1380.	1336.	669.	1093.	1752.	942.	1083.
WED	0600	1742.	1540.	2261.	1692.	1763.	1111.	1348.	2275.	1356.	1490.
WED	1200	1335.	1508.	1929.	2001.	1719.	882.	1238.	1705.	1495.	1320.
WED	1800	1833.	1682.	1502.	1451.	1602.	962.	1218.	1331.	1080.	1144.
THU	0000	915.	1202.	1602.	1275.	1279.	690.	1052.	1248.	1049.	1008.
THU	0600	1660.	1582.	2043.	1443.	1699.	995.	1200.	1816.	1186.	1305.
THU	1200	1466.	1829.	1823.	1490.	1667.	1001.	1208.	1698.	1121.	1268.
THU	1800	1301.	1637.	2200.	1349.	1629.	811.	1386.	1606.	1059.	1234.
FRI	0000	1144.	1166.	2066.	1663.	1509.	596.	959.	1357.	1725.	1096.
FRI	0600	2403.	1459.	1960.	2128.	1960.	1183.	1437.	1570.	1849.	1486.
FRI	1200	1180.	1386.	1707.	1357.	1400.	1187.	1395.	1412.	1871.	1433.
FRI	1800	1689.	1570.	1708.	1773.	1683.	1057.	1126.	1439.	2055.	1367.
SAT	0000	715.	1105.	1709.	1529.	1237.	623.	793.	1151.	1414.	956.
SAT	0600	918.	1167.	1716.	1611.	1302.	851.	859.	1322.	1584.	1114.
SAT	1200	1643.	1241.	1380.	1348.	1409.	1134.	1012.	1071.	1174.	1092.
SAT	1800	1384.	1480.	1631.	1899.	1572.	907.	884.	1230.	1277.	1053.

DIURNAL VARIATION OF DICHOTOMOUS TOTAL ALUMINUM IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	944.	1243.	1854.	1432.	1345.	660.	965.	1277.	1141.	992.
0600	1488.	1432.	1925.	1648.	1603.	902.	1212.	1605.	1378.	1256.
1200	1481.	1475.	1811.	1469.	1556.	943.	1098.	1452.	1281.	1182.
1800	1331.	1822.	1905.	1536.	1647.	862.	1198.	1432.	1209.	1166.

TABLE F.7 HEBDOMADAL AND DIURNAL PATTERNS FOR CALCIUM.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL CALCIUM IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	1593.	2367.	4626.	3438.	2771.	1172.	1750.	2222.	2888.	1911.
SUN	0600	1605.	1794.	2599.	2309.	2029.	884.	1611.	1640.	2063.	1485.
SUN	1200	1719.	1588.	1889.	2072.	1783.	1272.	1111.	1460.	2042.	1401.
SUN	1800	3343.	3726.	3772.	3087.	3486.	2524.	2293.	2142.	2105.	2297.
MON	0000	1373.	3345.	4078.	2558.	2732.	1351.	2779.	2202.	2379.	2131.
MON	0600	2974.	3709.	3552.	3108.	3343.	3091.	3843.	2634.	2928.	3183.
MON	1200	2866.	2774.	3042.	3877.	3111.	3188.	2597.	2748.	3220.	2948.
MON	1800	1271.	4933.	4434.	4855.	3889.	1127.	3572.	3343.	3219.	2760.
TUE	0000	1324.	5100.	4177.	3449.	3568.	1099.	2819.	3436.	2429.	2476.
TUE	0600	2498.	4640.	4493.	3716.	3846.	2512.	4335.	4779.	2999.	3685.
TUE	1200	4250.	3428.	3887.	2316.	3446.	3370.	2738.	3763.	2468.	3082.
TUE	1800	3026.	5383.	7049.	3030.	4538.	2552.	3686.	4686.	2477.	3348.
WED	0000	1017.	3119.	4142.	2281.	2720.	1758.	2959.	4459.	1895.	2709.
WED	0600	3458.	4358.	4651.	2613.	3682.	2778.	3767.	4996.	2698.	3536.
WED	1200	2450.	3429.	3201.	2868.	3011.	2516.	3334.	3363.	2264.	2906.
WED	1800	3422.	4711.	3028.	3025.	3530.	2447.	3834.	2578.	2165.	2814.
THU	0000	2143.	2848.	2895.	2599.	2647.	1498.	2468.	2384.	2107.	2115.
THU	0600	2302.	3434.	3754.	3085.	3189.	2758.	3140.	3538.	2590.	3037.
THU	1200	3271.	3033.	3149.	3166.	3147.	2924.	2914.	2961.	2602.	2871.
THU	1800	3697.	4757.	5151.	3309.	4240.	2467.	3493.	3375.	2033.	2900.
FRI	0000	1754.	3540.	4468.	2877.	3156.	1391.	2908.	2673.	3151.	2491.
FRI	0600	2640.	3811.	4849.	4048.	3850.	2941.	3849.	4005.	2541.	3593.
FRI	1200	3020.	3325.	2537.	3422.	3099.	2899.	3771.	3123.	4940.	3578.
FRI	1800	3272.	4549.	5081.	5215.	4548.	2332.	3134.	4018.	5418.	3573.
SAT	0000	1764.	2785.	3870.	4260.	3121.	1427.	1849.	3017.	3311.	2305.
SAT	0600	1535.	2442.	3992.	4063.	2859.	1661.	2179.	2967.	3124.	2420.
SAT	1200	1972.	2309.	2575.	2775.	2365.	1795.	1883.	1890.	2970.	2053.
SAT	1800	2098.	3486.	3753.	5036.	3465.	1640.	2221.	2625.	3979.	2474.

DIURNAL VARIATION OF DICHOTOMOUS TOTAL CALCIUM IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	1694.	3321.	3945.	3045.	2966.	1391.	2505.	2900.	2564.	2302.
0600	2415.	3464.	3961.	3311.	3259.	2363.	3252.	3521.	2857.	2994.
1200	2801.	2862.	2978.	2963.	2900.	2566.	2647.	2776.	2945.	2717.
1800	2861.	4521.	4671.	3906.	3987.	2144.	3195.	3289.	2993.	2887.

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TABLE F.8 HEBDOMADAL AND DIURNAL PATTERNS FOR LEAD.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL LEAD IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	596.	421.	786.	1614.	806.	675.	488.	696.	946.	679.
SUN	0600	329.	330.	655.	401.	417.	477.	460.	412.	550.	469.
SUN	1200	252.	238.	195.	199.	225.	408.	247.	302.	463.	345.
SUN	1800	1360.	716.	829.	1670.	1129.	1211.	637.	600.	1061.	876.
MON	0000	1391.	873.	684.	1047.	1029.	866.	778.	492.	806.	748.
MON	0600	533.	673.	441.	1043.	646.	897.	1007.	517.	943.	854.
MON	1200	313.	354.	371.	546.	392.	641.	600.	422.	957.	660.
MON	1800	299.	934.	835.	970.	759.	455.	932.	975.	684.	752.
TUE	0000	1108.	879.	706.	778.	872.	713.	855.	821.	772.	792.
TUE	0600	908.	661.	691.	1019.	814.	1303.	1113.	889.	1379.	1162.
TUE	1200	413.	317.	351.	439.	381.	763.	421.	479.	920.	641.
TUE	1800	712.	760.	1049.	669.	790.	823.	625.	1048.	889.	836.
WED	0000	519.	841.	1176.	488.	709.	676.	921.	1474.	919.	973.
WED	0600	542.	683.	1046.	629.	693.	1004.	997.	1259.	1156.	1095.
WED	1200	268.	249.	380.	546.	369.	820.	449.	623.	1133.	733.
WED	1800	549.	812.	631.	860.	721.	787.	765.	773.	893.	801.
THU	0000	349.	725.	739.	752.	658.	740.	766.	869.	944.	825.
THU	0600	558.	528.	715.	1066.	720.	1080.	791.	924.	1286.	998.
THU	1200	473.	256.	349.	379.	357.	707.	559.	719.	850.	697.
THU	1800	983.	1014.	1001.	701.	924.	746.	1001.	824.	900.	868.
FRI	0000	893.	1099.	1207.	1096.	1075.	806.	1046.	1830.	2046.	1363.
FRI	0600	511.	907.	1056.	1273.	959.	1240.	1149.	1065.	1508.	1221.
FRI	1200	335.	325.	366.	463.	373.	858.	614.	615.	1235.	797.
FRI	1800	805.	626.	1029.	1266.	931.	1113.	480.	984.	1766.	1050.
SAT	0000	612.	471.	942.	1203.	786.	599.	416.	1053.	1025.	753.
SAT	0600	265.	387.	828.	1051.	592.	507.	352.	801.	892.	617.
SAT	1200	310.	211.	265.	601.	336.	471.	233.	401.	914.	488.
SAT	1800	595.	451.	492.	1579.	755.	666.	453.	652.	1386.	733.

DIURNAL VARIATION OF DICHOTOMOUS TOTAL LEAD IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	778.	756.	892.	961.	842.	725.	753.	1043.	1047.	877.
0600	518.	596.	773.	935.	695.	920.	842.	850.	1125.	920.
1200	338.	280.	336.	463.	352.	667.	449.	516.	943.	625.
1800	757.	760.	852.	1045.	850.	830.	708.	841.	1044.	844.

TABLE F.9 HEBDOMADAL AND DIURNAL PATTERNS FOR VANADIUM.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL VANADIUM IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	0.00	6.80	15.66	6.27	6.19	5.65	1.84	5.33	8.90	5.13
SUN	0600	0.00	5.30	9.84	4.68	4.61	4.62	3.32	3.42	7.79	4.54
SUN	1200	0.00	6.55	8.07	1.81	4.04	2.88	2.22	0.69	3.49	2.24
SUN	1800	0.00	7.60	6.33	11.80	5.83	6.48	4.90	2.03	6.11	4.91
MON	0000	0.00	7.30	7.09	11.44	5.83	14.72	8.02	3.54	2.16	8.16
MON	0600	0.00	11.89	9.83	8.58	7.17	9.93	7.51	4.76	7.59	7.69
MON	1200	0.00	7.02	8.67	7.71	6.05	6.38	7.57	1.30	8.40	6.02
MON	1800	0.00	10.57	9.85	14.64	8.61	6.73	6.96	5.86	5.98	6.41
TUE	0000	0.00	10.48	11.71	8.09	7.61	6.05	6.58	4.23	7.29	6.01
TUE	0600	0.00	9.13	10.69	10.52	7.44	9.55	5.72	5.91	12.73	8.29
TUE	1200	0.82	7.15	10.85	4.72	5.86	9.81	1.91	2.75	7.03	5.41
TUE	1800	1.01	10.53	15.55	5.97	8.07	8.02	6.22	9.65	7.37	7.75
WED	0000	0.49	10.99	13.40	6.09	7.06	6.27	7.27	4.22	8.37	6.55
WED	0600	0.00	9.66	18.50	8.88	8.34	9.98	5.91	8.63	9.19	8.41
WED	1200	0.13	4.91	9.98	12.56	7.36	6.54	2.67	3.98	7.71	5.07
WED	1800	0.00	8.54	8.17	8.44	6.63	10.77	3.98	2.84	7.82	6.39
THU	0000	0.00	9.00	9.62	11.52	7.99	9.02	7.56	3.78	10.78	7.66
THU	0600	0.00	11.50	15.75	9.93	9.79	9.17	4.32	1.57	8.73	5.73
THU	1200	0.00	8.18	9.22	9.58	7.11	6.50	6.63	2.91	7.24	5.70
THU	1800	0.00	7.84	16.32	7.88	8.18	8.22	5.07	5.42	9.28	6.83
FRI	0000	0.00	7.30	11.85	11.35	7.77	7.60	8.39	6.70	5.84	7.26
FRI	0600	0.00	12.22	9.17	15.33	9.84	6.52	12.28	3.47	5.01	7.06
FRI	1200	0.00	5.75	6.37	9.52	5.48	8.18	8.37	2.88	10.51	7.23
FRI	1800	0.00	8.82	14.65	14.29	9.51	7.25	4.62	4.32	13.89	6.99
SAT	0000	0.00	6.19	10.63	14.44	7.61	4.56	3.62	5.47	12.57	6.12
SAT	0600	0.00	3.62	8.19	12.87	5.68	4.91	1.98	2.23	6.79	3.72
SAT	1200	0.00	4.16	6.81	8.11	4.33	3.57	3.28	1.29	5.26	3.15
SAT	1800	0.00	5.73	6.21	10.93	5.27	6.24	2.02	6.99	9.86	5.96

DIURNAL VARIATION OF DICHOTOMOUS TOTAL VANADIUM IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	0.08	8.30	11.28	9.88	7.22	7.72	6.18	4.82	8.22	6.68
0600	0.00	8.95	11.93	10.41	7.60	7.79	5.92	4.20	8.39	6.48
1200	0.15	6.27	8.74	8.13	5.83	6.27	4.68	2.30	7.30	5.03
1800	0.16	8.56	11.54	10.27	7.55	7.63	4.84	5.37	8.47	6.49

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TABLE F.10 HEBDOMADAL AND DIURNAL PATTERNS FOR TITANIUM.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL TITANIUM IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	31.6	116.2	139.9	139.3	100.1	100.8	379.5	234.2	469.4	276.2
SUN	0600	106.2	216.7	162.0	73.4	140.9	129.0	439.7	170.2	86.8	216.3
SUN	1200	21.0	161.5	164.9	81.8	105.4	38.6	127.6	67.1	73.3	76.4
SUN	1800	34.4	138.9	126.6	64.4	89.1	204.7	122.4	48.9	54.0	119.0
MON	0000	21.3	242.5	128.0	167.0	138.0	75.3	312.1	62.1	334.7	186.0
MON	0600	14.5	195.8	163.4	139.1	122.6	102.9	332.7	103.9	336.6	210.3
MON	1200	23.4	140.2	122.8	101.2	100.9	119.1	154.2	99.4	170.1	136.1
MON	1800	4.9	188.5	141.7	116.1	116.7	33.7	159.2	129.9	121.8	108.9
TUE	0000	26.4	277.1	160.7	176.9	165.4	98.2	228.9	172.2	134.9	160.4
TUE	0600	43.5	213.8	231.3	220.3	175.4	153.6	320.3	266.4	276.9	253.3
TUE	1200	84.7	155.5	201.6	118.5	139.6	151.2	130.4	170.1	203.0	161.8
TUE	1800	54.2	171.7	231.5	132.7	145.5	122.7	119.4	254.8	257.8	184.3
WED	0000	104.1	183.1	582.3	175.9	228.2	230.1	223.5	1716.0	223.9	557.2
WED	0600	80.5	157.9	417.0	210.5	196.4	171.3	176.6	780.1	162.3	319.7
WED	1200	61.3	160.3	193.5	130.8	140.7	139.1	151.9	213.4	152.4	164.9
WED	1800	57.5	207.9	203.5	143.2	157.8	91.6	198.4	225.1	114.3	157.2
THU	0000	54.6	280.2	200.3	155.0	176.0	70.2	204.8	248.7	232.2	187.1
THU	0600	37.6	277.5	270.0	164.6	194.4	101.6	356.1	297.0	232.7	250.1
THU	1200	30.0	215.3	144.8	108.5	130.9	102.4	129.3	169.9	83.9	124.5
THU	1800	31.3	183.8	226.2	92.3	135.6	109.5	287.3	638.3	124.0	303.9
FRI	0000	28.4	361.6	302.4	656.1	351.2	174.0	384.4	282.1	1519.1	498.1
FRI	0600	65.6	294.5	248.3	524.3	301.2	214.1	320.2	268.9	353.0	285.6
FRI	1200	28.9	144.4	125.1	104.6	101.2	87.6	224.8	106.8	227.2	156.2
FRI	1800	176.3	108.3	183.0	119.1	143.1	168.3	100.8	206.9	387.5	204.2
SAT	0000	21.3	88.2	356.1	259.8	169.2	63.6	170.5	281.7	634.7	260.1
SAT	0600	8.9	118.8	242.7	273.4	148.2	47.9	125.4	617.5	705.2	343.4
SAT	1200	46.0	89.2	118.5	504.8	173.5	69.6	82.3	119.2	251.3	118.5
SAT	1800	77.0	114.2	115.9	180.2	118.2	161.3	94.1	275.8	195.8	180.0

DIURNAL VARIATION OF DICHOTOMOUS TOTAL TITANIUM IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	42.4	219.4	264.8	260.5	193.8	117.0	272.0	409.4	476.3	304.1
0600	51.5	209.6	246.6	244.2	184.5	130.6	296.8	367.5	303.2	269.5
1200	42.8	152.7	155.0	156.2	127.4	101.1	143.7	136.8	168.5	135.1
1800	62.4	159.0	183.2	123.2	131.4	128.0	157.4	265.9	178.5	180.9

TABLE F.11 HEBDOMADAL AND DIURNAL PATTERNS FOR IRON.

HEBDOMADAL VARIATION OF DICHOTOMOUS TOTAL IRON IN NANOGRAMS PER CUBIC METER

		STATION 103					STATION 105				
DAY	HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
SUN	0000	1078.	1465.	3245.	1661.	1705.	644.	921.	1357.	1077.	985.
SUN	0600	1352.	1176.	1909.	1097.	1371.	449.	955.	1080.	675.	786.
SUN	1200	954.	1033.	1709.	1054.	1160.	395.	615.	736.	605.	578.
SUN	1800	1441.	2470.	1671.	1496.	1815.	972.	1120.	846.	638.	929.
MON	0000	1061.	2353.	2734.	1493.	1865.	957.	1368.	1204.	969.	1133.
MON	0600	1200.	2536.	2065.	1277.	1806.	1748.	2073.	1314.	1686.	1737.
MON	1200	1035.	1747.	1575.	1581.	1506.	1298.	1137.	1062.	1060.	1144.
MON	1800	733.	2719.	2489.	2196.	2068.	779.	1381.	1477.	1018.	1152.
TUE	0000	1156.	2924.	2780.	1624.	2142.	766.	1313.	1661.	868.	1167.
TUE	0600	1313.	2665.	2298.	2238.	2143.	1253.	2034.	2332.	2052.	1912.
TUE	1200	2013.	1850.	1992.	1246.	1765.	1185.	1150.	1547.	1075.	1237.
TUE	1800	1442.	2985.	3112.	1407.	2201.	1297.	1984.	1547.	1219.	1527.
WED	0000	1176.	1627.	2611.	1287.	1574.	878.	1460.	2522.	976.	1420.
WED	0600	1736.	2192.	2822.	1566.	2005.	1348.	1627.	2693.	1169.	1715.
WED	1200	1311.	1806.	1965.	1771.	1736.	972.	1278.	1360.	913.	1144.
WED	1800	1801.	2275.	1704.	1637.	1849.	1073.	1823.	1353.	995.	1335.
THU	0000	971.	2108.	2132.	1644.	1752.	798.	1292.	1660.	827.	1158.
THU	0600	1232.	2092.	2053.	1833.	1826.	1324.	1815.	1936.	1234.	1605.
THU	1200	1467.	1819.	1747.	1516.	1650.	1085.	1276.	1264.	945.	1159.
THU	1800	1742.	2443.	2664.	1380.	2065.	1314.	2118.	1634.	957.	1544.
FRI	0000	1030.	2274.	3254.	1775.	2074.	675.	1555.	1447.	2256.	1396.
FRI	0600	2087.	2250.	2482.	2242.	2262.	1397.	2160.	1945.	2180.	1909.
FRI	1200	1489.	1636.	1470.	1393.	1496.	1048.	1474.	1143.	1705.	1312.
FRI	1800	1711.	2158.	2129.	2939.	2263.	999.	1349.	1332.	2028.	1364.
SAT	0000	1178.	1556.	2319.	2357.	1818.	641.	862.	1204.	1273.	969.
SAT	0600	957.	1314.	1880.	2029.	1489.	697.	807.	1265.	1223.	978.
SAT	1200	1270.	1264.	1332.	1421.	1314.	757.	802.	826.	993.	829.
SAT	1800	1248.	1569.	2209.	2453.	1784.	803.	778.	1157.	1293.	978.

DIURNAL VARIATION OF DICHOTOMOUS TOTAL IRON IN NANOGRAMS PER CUBIC METER

	STATION 103					STATION 105				
HOUR	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
0000	1096.	2044.	2682.	1693.	1849.	765.	1253.	1570.	1150.	1175.
0600	1394.	2033.	2201.	1804.	1847.	1169.	1647.	1804.	1479.	1521.
1200	1375.	1605.	1709.	1446.	1506.	963.	1113.	1138.	1056.	1067.
1800	1438.	2375.	2324.	1930.	2019.	1027.	1528.	1346.	1156.	1268.

APPENDIX G

WEEKEND-WEEKDAY DIFFERENCES OF TWELVE PARTICULATE PARAMETERS AT THE TEN RAMS SITES.

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TABLE G.1 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF TSP (MICROGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	97.742	37.009	72	90.813	36.673	31	0.874	101
105	93.050	33.269	76	75.794	30.725	33	2.545**	107
106	81.713	32.496	75	66.682	27.116	33	2.323*	106
108	80.353	36.028	72	79.550	40.708	28	0.096	98
112	78.349	33.943	77	80.341	80.973	32	-0.182	107
115	63.031	29.128	72	52.530	22.106	33	1.840*	103
118	64.068	25.110	72	70.056	38.645	27	-0.904	97
120	54.085	21.378	73	49.050	19.594	30	1.112	101
122	57.501	26.105	70	49.594	24.427	32	1.448	100
124	54.561	27.543	72	49.319	25.745	32	0.914	102

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.2 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF IP (MICROGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	62.295	30.078	202	53.684	27.794	73	2.138*	273
105	48.355	26.312	203	38.856	20.687	79	2.880**	280
106	51.864	24.056	127	38.830	20.375	56	3.533**	181
108	51.194	24.529	159	41.103	20.415	62	2.873**	219
112	45.414	23.035	189	39.685	20.798	68	1.803*	255
115	38.636	19.967	158	35.744	15.901	63	1.027	219
118	35.655	17.172	197	33.034	14.198	77	1.190	272
120	38.055	17.815	164	34.241	13.992	63	1.527	225
122	34.071	18.715	171	30.716	17.616	69	1.278	238
124	29.115	13.741	121	27.158	10.845	50	0.898	169

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.3 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF FINE (MICROGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	28.568	16.144	204	26.032	15.694	76	1.178	278
105	24.174	14.783	212	19.872	11.677	82	2.365**	292
106	25.507	13.222	149	20.523	11.766	62	2.574**	209
108	25.064	13.354	176	20.549	10.076	67	2.508**	241
112	21.338	12.065	224	19.287	10.270	84	1.382	306
115	19.625	10.291	196	18.543	9.465	76	0.795	270
118	18.600	11.674	208	16.760	8.172	80	1.293	286
120	20.271	11.110	185	18.975	9.730	69	0.854	252
122	17.440	10.764	190	15.162	9.146	71	1.582	259
124	16.150	9.461	129	14.461	6.690	52	1.173	179

** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.4 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF COARSE (MICROGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	33.463	17.204	213	28.320	16.121	75	2.263*	286
105	24.376	13.245	209	19.154	11.063	82	3.163**	289
106	27.052	12.637	132	18.807	10.603	59	4.370**	189
108	25.848	14.385	172	20.716	11.654	68	2.620**	238
112	23.784	14.405	192	20.466	12.424	71	1.718*	261
115	19.407	11.714	164	16.933	9.484	66	1.526	228
118	17.366	8.856	204	17.257	9.310	83	0.094	285
120	17.170	8.645	185	14.618	7.254	72	2.219*	255
122	16.960	10.363	184	16.023	11.290	75	0.643	257
124	12.838	8.196	130	12.492	7.934	52	0.260	180

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.5 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF SULFUR (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	3703.503	2677.665	212	3018.678	2038.938	75	2.017*	285
105	3266.278	2637.450	222	2739.933	1661.518	87	1.731*	307
106	3726.309	2944.281	153	2948.129	2031.026	65	1.942*	216
108	3483.733	2451.688	188	2664.952	1610.563	72	2.624**	258
112	3044.735	2387.999	225	2696.754	1823.582	86	1.222	309
115	2857.956	1863.086	207	2547.790	1306.707	84	1.392	289
118	2770.657	2196.493	203	2540.787	1542.285	81	0.861	282
120	2840.563	2144.614	190	2496.172	1746.549	73	1.224	261
122	2676.534	2103.179	191	2188.539	1464.462	77	1.861*	266
124	2545.314	2268.709	136	1993.896	1208.185	54	1.692*	188

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.6 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF SILICON (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	4835.812	2771.723	212	4628.670	3219.714	75	0.533	285
105	3821.521	1969.344	222	3057.079	1948.820	87	3.078**	307
106	4631.646	2214.229	153	3179.269	1993.536	65	4.560**	216
108	4322.317	3011.003	188	3604.287	2346.651	72	1.822*	258
112	4396.197	3251.507	212	4168.654	3576.936	82	0.523	292
115	3599.662	2712.325	207	3274.702	2328.559	84	0.963	289
118	2813.721	1811.414	203	2962.123	2016.452	81	-0.603	282
120	2850.045	1595.795	190	2440.744	1712.163	73	1.825*	261
122	3078.956	2032.920	171	2916.046	2019.577	67	0.557	236
124	2232.745	2007.925	136	2187.437	2191.890	54	0.137	188

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.7 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF ALUMINUM (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	1568.088	826.497	212	1417.384	931.715	75	1.312	285
105	1212.016	563.316	222	950.948	520.517	87	3.741**	307
106	1228.813	538.427	153	913.268	490.758	65	4.061**	216
108	1280.146	776.804	188	988.378	559.839	72	2.909**	258
112	1329.908	943.304	212	1229.989	1022.464	82	0.795	292
115	980.719	653.724	207	869.296	528.177	84	1.389	289
118	814.137	516.747	203	791.312	460.790	81	0.346	282
120	843.714	433.038	190	685.716	423.024	73	2.666**	261
122	802.837	473.156	171	739.692	476.426	67	0.924	236
124	610.910	451.670	136	569.328	483.856	54	0.561	188

** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.8 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF CALCIUM (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	3446.448	1985.804	212	2842.306	2068.830	75	2.240*	285
105	2948.647	1544.673	222	2021.289	1437.538	87	4.838**	307
106	2805.426	1261.151	153	1704.924	914.175	65	6.358**	216
108	3100.284	2057.601	188	2340.466	1702.790	72	2.788**	258
112	2043.435	1173.099	225	1738.688	1116.003	86	2.076*	309
115	1729.192	1187.432	207	1551.458	1183.577	84	1.158	289
118	2207.576	1581.731	203	1741.211	1120.759	81	2.421**	282
120	1558.375	936.680	190	1202.701	756.810	73	2.900**	261
122	1872.323	1515.410	191	1889.961	1550.105	77	-0.086	266
124	1036.920	890.073	136	876.681	781.771	54	1.157	188

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.9 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF LEAD (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	704.456	591.466	212	623.239	591.370	75	1.022	285
105	890.486	621.170	222	610.978	414.794	87	3.871**	307
106	947.364	433.922	153	683.359	294.659	64	4.454**	215
108	803.530	1025.211	187	621.660	703.885	72	1.384	257
112	928.656	536.471	225	792.808	591.592	86	1.941*	309
115	406.290	259.773	207	370.449	241.913	84	1.087	289
118	382.747	308.275	203	341.443	228.118	81	1.092	282
120	706.481	378.391	187	510.722	305.867	71	3.901**	256
122	224.590	178.001	191	178.352	153.084	77	2.000*	266
124	175.119	203.087	133	220.424	328.766	54	-1.142	185

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.10 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF VANADIUM (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	7.682	7.366	212	5.612	7.076	75	2.113*	285
105	6.779	5.904	222	4.275	4.410	87	3.582**	307
106	6.672	5.297	153	4.637	3.739	64	2.794**	215
108	11.467	10.170	187	7.522	6.389	72	3.064**	257
112	6.996	5.465	225	6.194	6.117	86	1.120	309
115	5.095	4.598	207	5.495	5.198	84	-0.648	289
118	3.064	3.290	203	2.631	3.241	81	1.006	282
120	3.010	3.299	187	1.939	2.966	71	2.392**	256
122	2.314	3.321	191	2.092	3.145	77	0.501	266
124	1.948	2.119	133	1.891	1.762	54	0.176	185

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

TABLE G.11 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF TITANIUM (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	171.679	258.401	212	136.396	192.903	75	1.080	285
105	234.863	365.777	222	191.323	368.884	87	0.939	307
106	575.795	813.272	153	434.922	821.487	64	1.160	215
108	145.475	153.584	187	102.879	105.813	72	2.163*	257
112	227.138	331.790	225	232.246	350.907	86	-0.120	309
115	97.651	89.671	207	78.355	69.515	84	1.768*	289
118	171.538	247.642	203	173.281	195.887	81	-0.057	282
120	94.897	115.613	187	81.749	110.983	71	0.825	256
122	64.845	56.149	191	64.454	62.772	77	0.050	266
124	44.922	44.737	133	42.028	41.816	54	0.408	185

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).

TABLE G.12 AVERAGE WEEKDAY AND WEEKEND CONCENTRATIONS OF IRON (NANOGRAMS PER CUBIC METER).

Station	Weekday			Weekend			T-Test	D.F.
	Mean	Stand. Dev.	N	Mean	Stand. Dev.	N		
103	1888.531	1022.545	212	1615.611	1060.541	75	1.967*	285
105	1393.919	780.332	222	868.458	570.937	87	5.708**	307
106	1517.305	758.668	153	975.800	702.738	64	4.898**	215
108	1931.591	1558.666	187	1161.329	966.925	72	3.911**	257
112	1122.324	757.862	225	978.050	835.369	86	1.462	309
115	792.904	482.715	207	691.478	355.185	84	1.743*	289
118	692.605	357.345	203	670.054	377.856	81	0.472	282
120	671.865	357.873	187	497.401	296.076	71	3.659**	256
122	659.540	350.867	191	588.715	390.972	77	1.446	266
124	422.789	306.860	133	383.896	302.809	54	0.788	185

* An average weekday is significantly greater than an average weekend day at the 95th percent level (1.645).
** An average weekday is significantly greater than an average weekend day at the 99th percent level (2.326).

APPENDIX H

DECISION-TREES RELATING FINE AND IP
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Figure H.1 Decision-tree relating FINE at station 103 to elemental concentrations.

H-2

Figure H.2 Decision-tree relating FINE at station 105 to elemental concentrations.

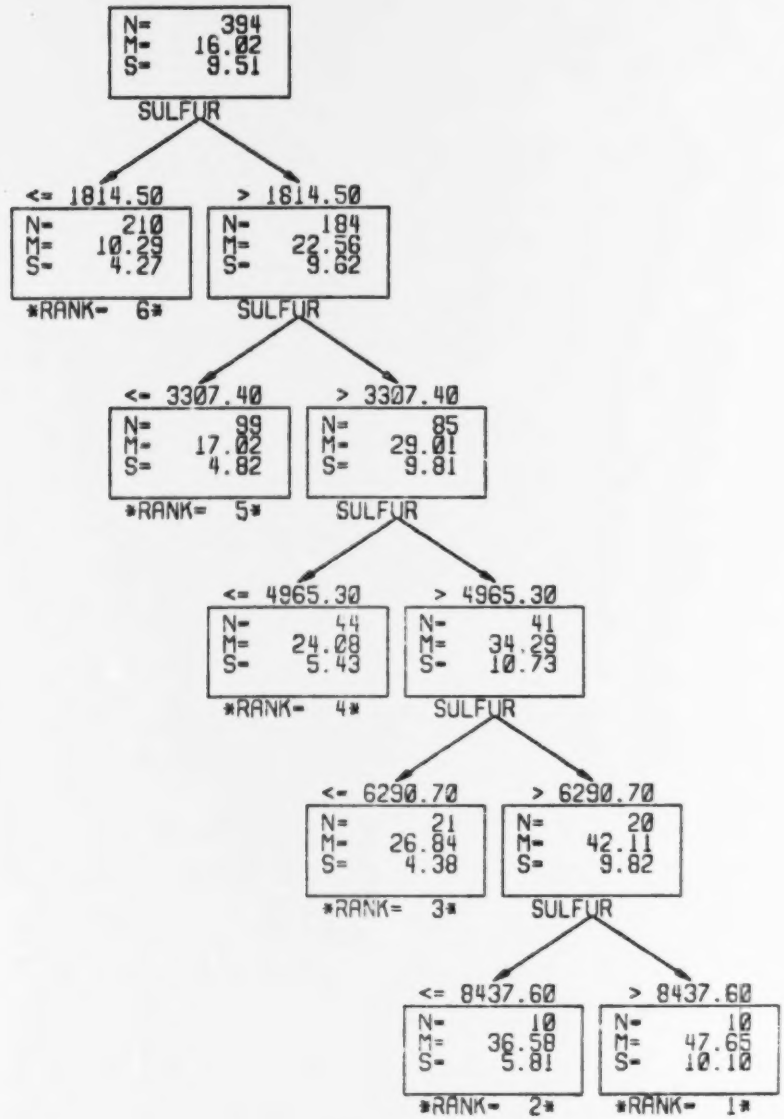

Figure H.3 Decision-tree relating FINE at station 124 to elemental concentrations.

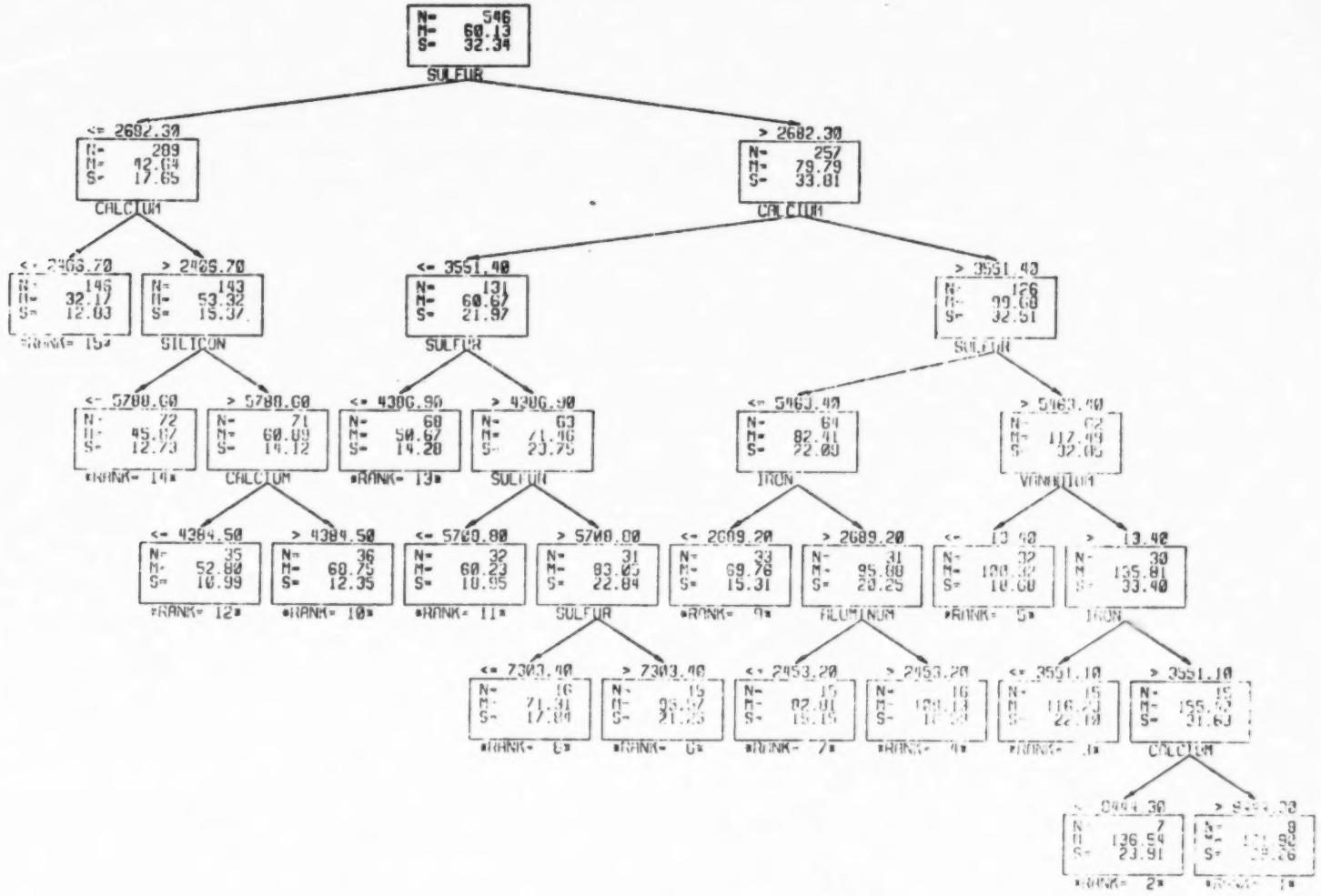

Figure H.4 Decision-tree relating IP at station 103 to elemental concentrations.

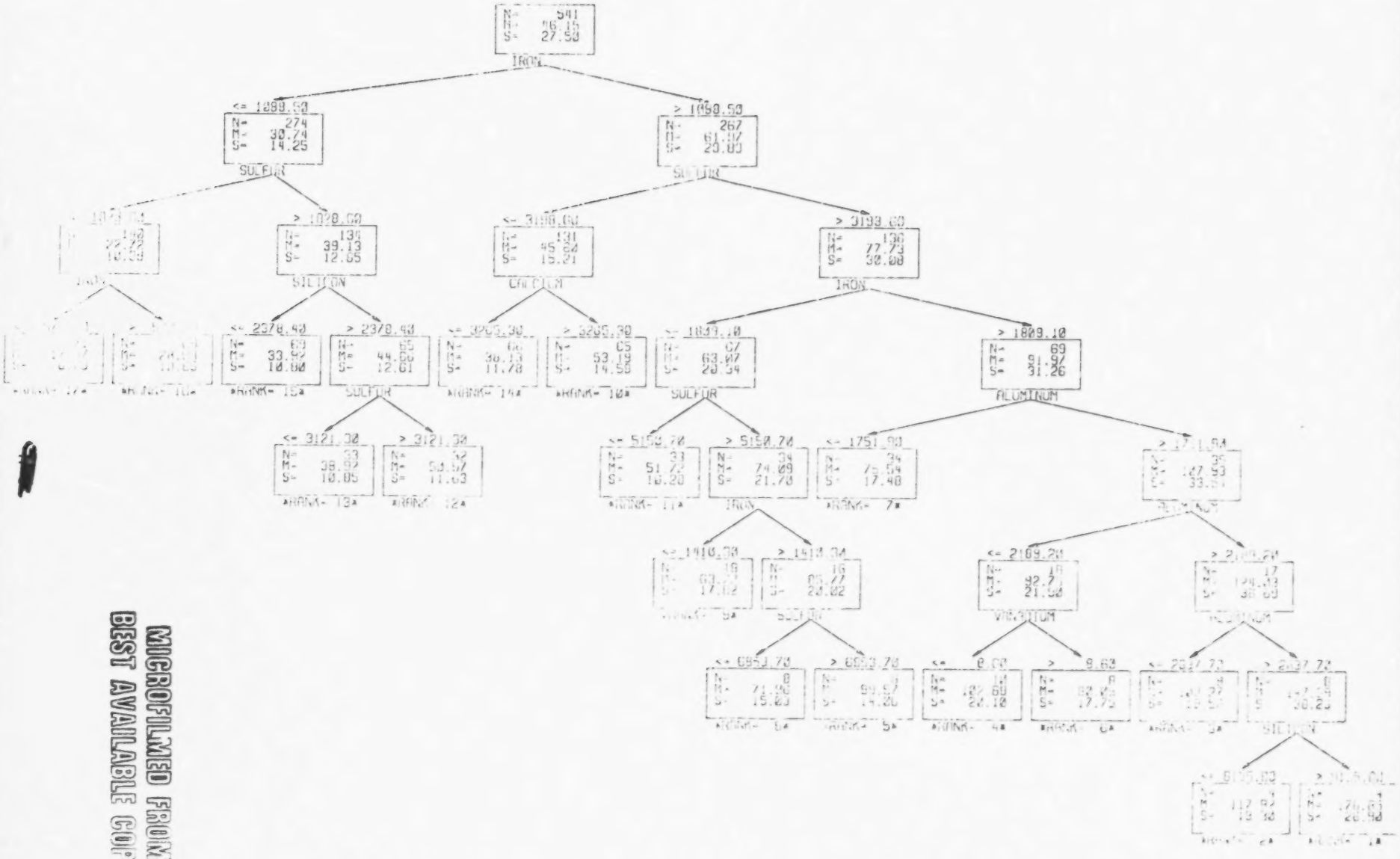

Figure H.5 Decision-tree relating IP at station 105 to elemental concentrations.

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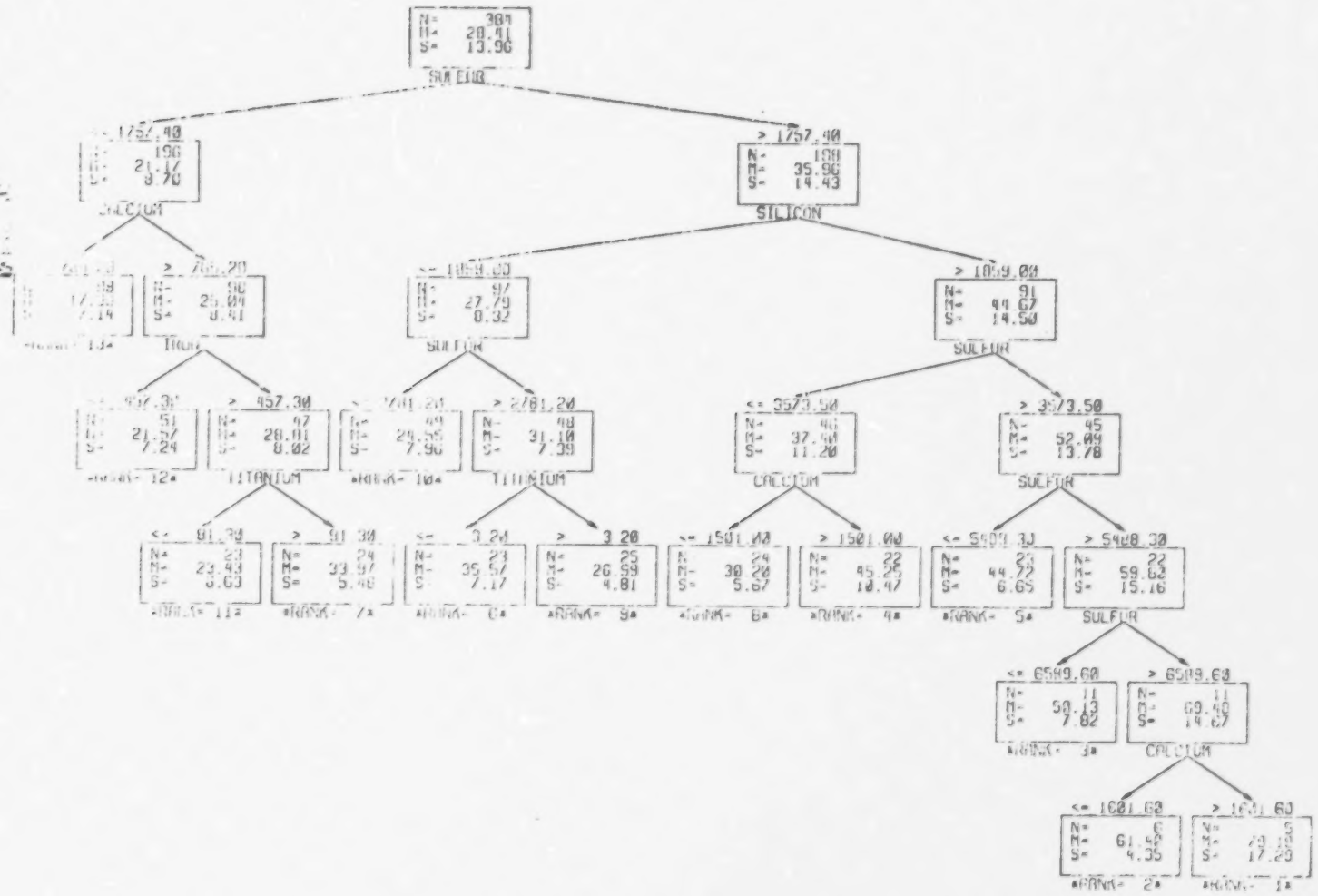

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APPENDIX I

DECISION-TREES RELATING TSP, IP, FINE, COARSE, AND EIGHT ELEMENTAL CONCENTRATIONS TO METEOROLOGICAL VARIABLES.

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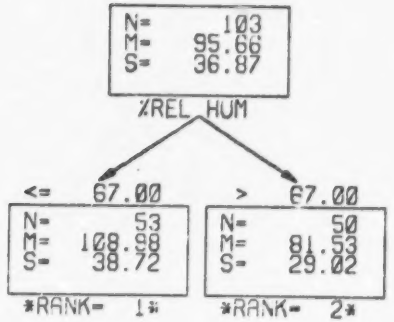

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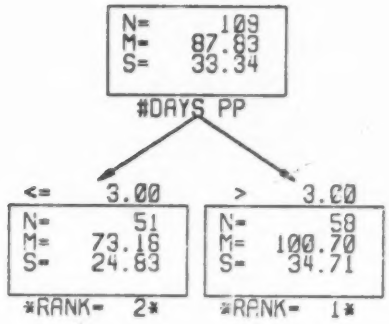
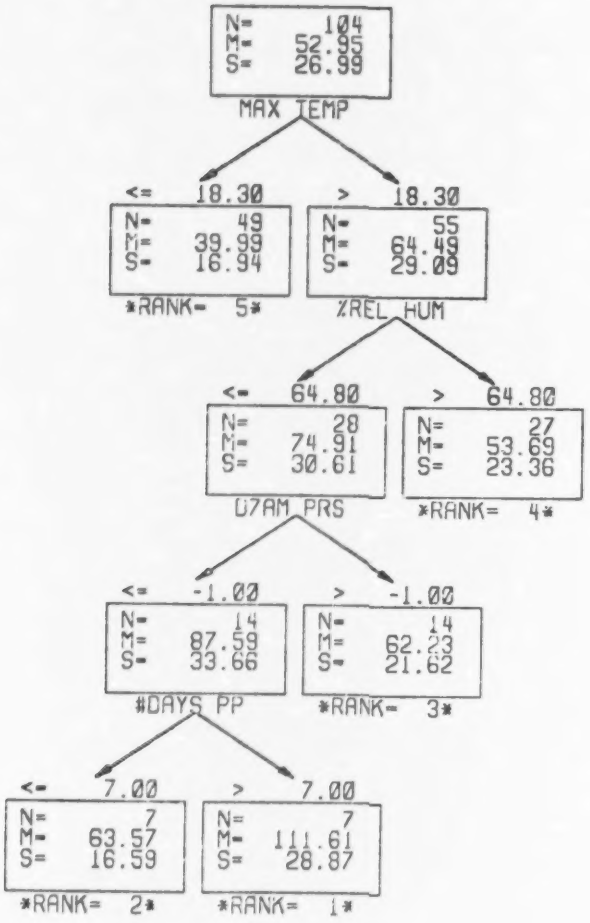


Figure I.2 Decision-tree relating TSP at station 105 to meteorological variables.



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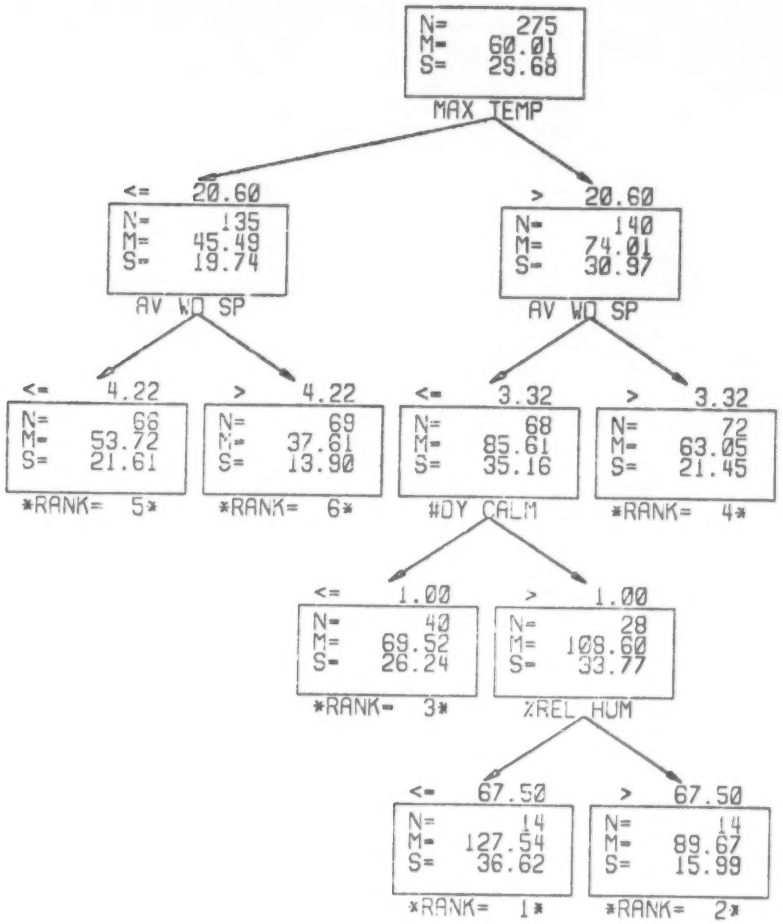

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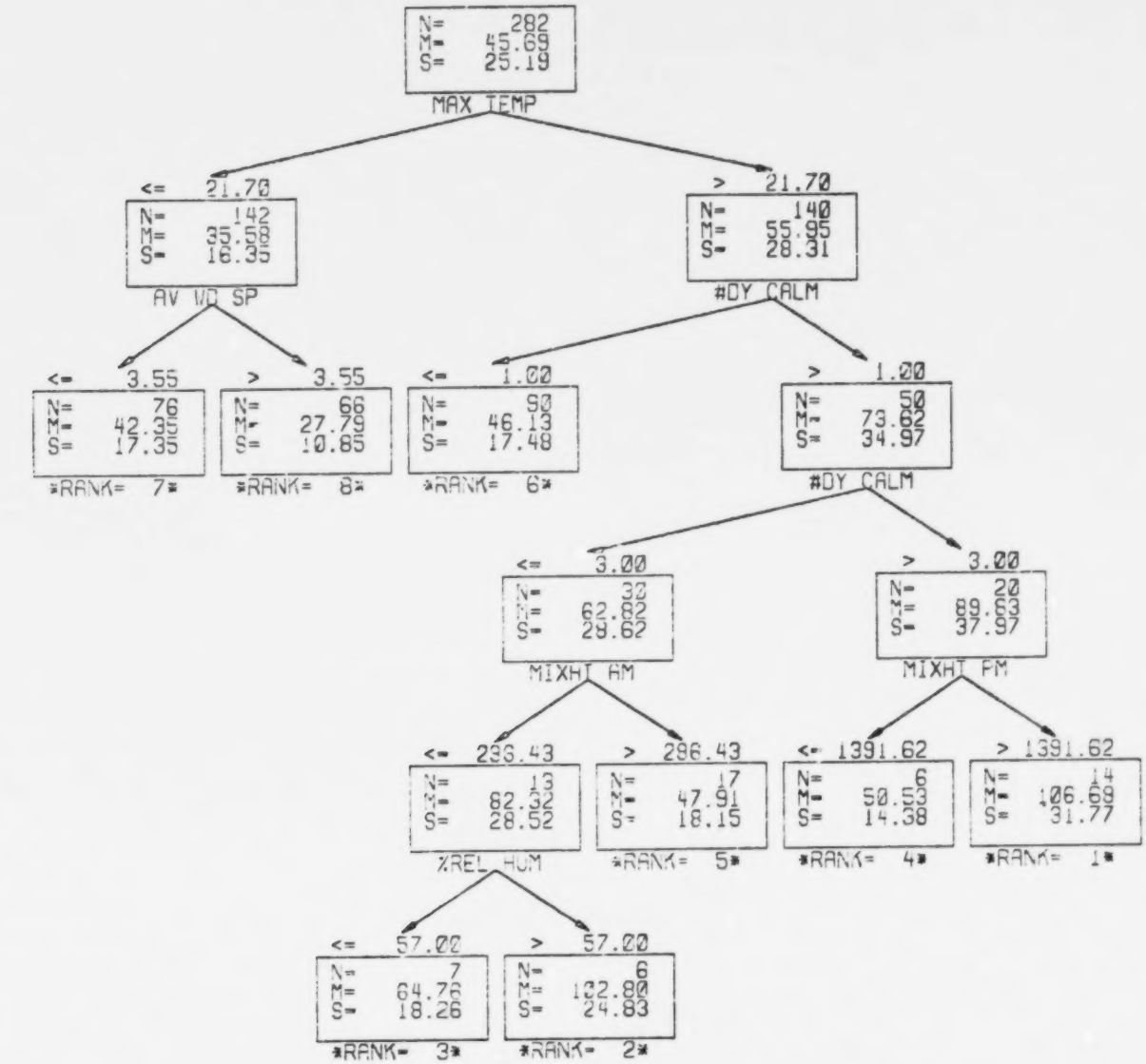

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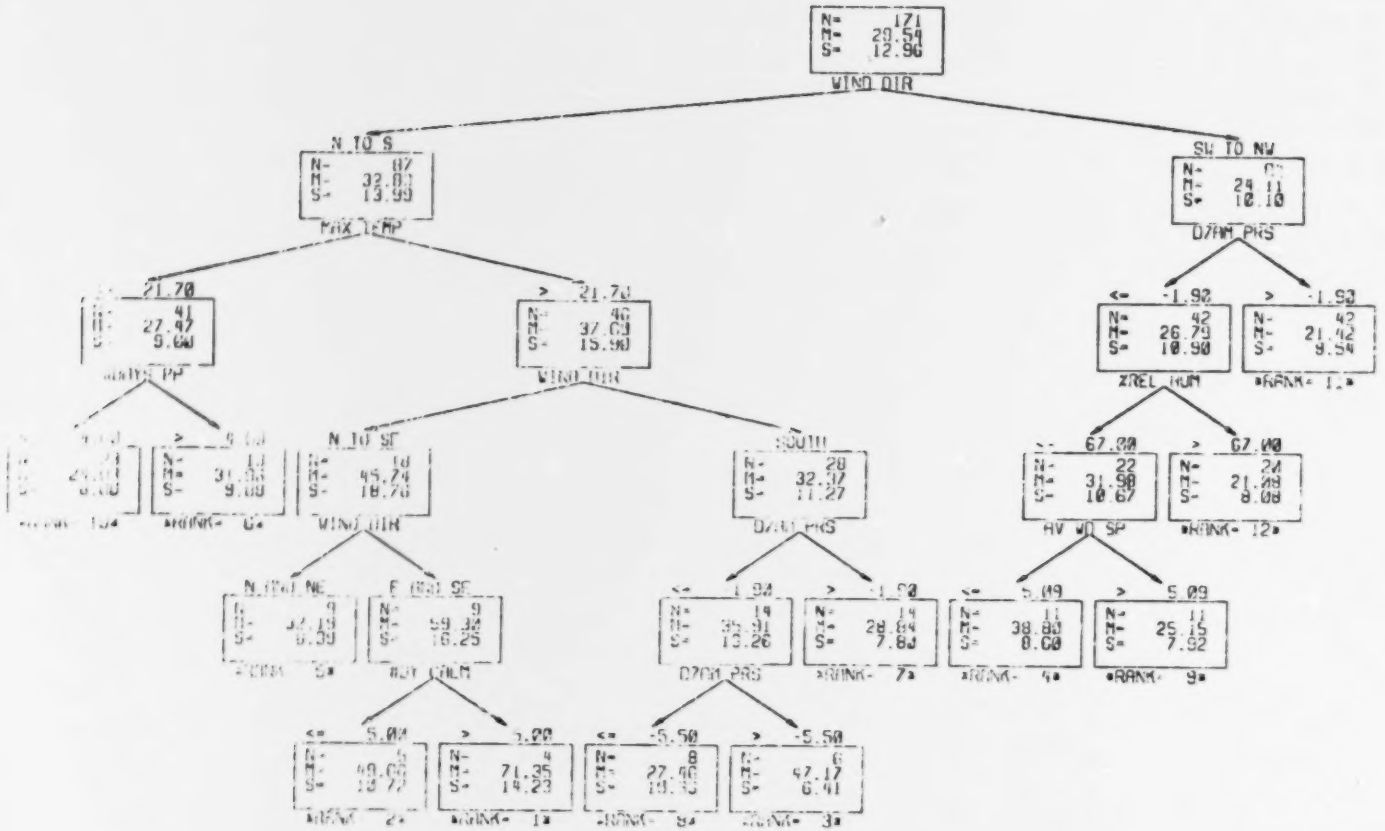

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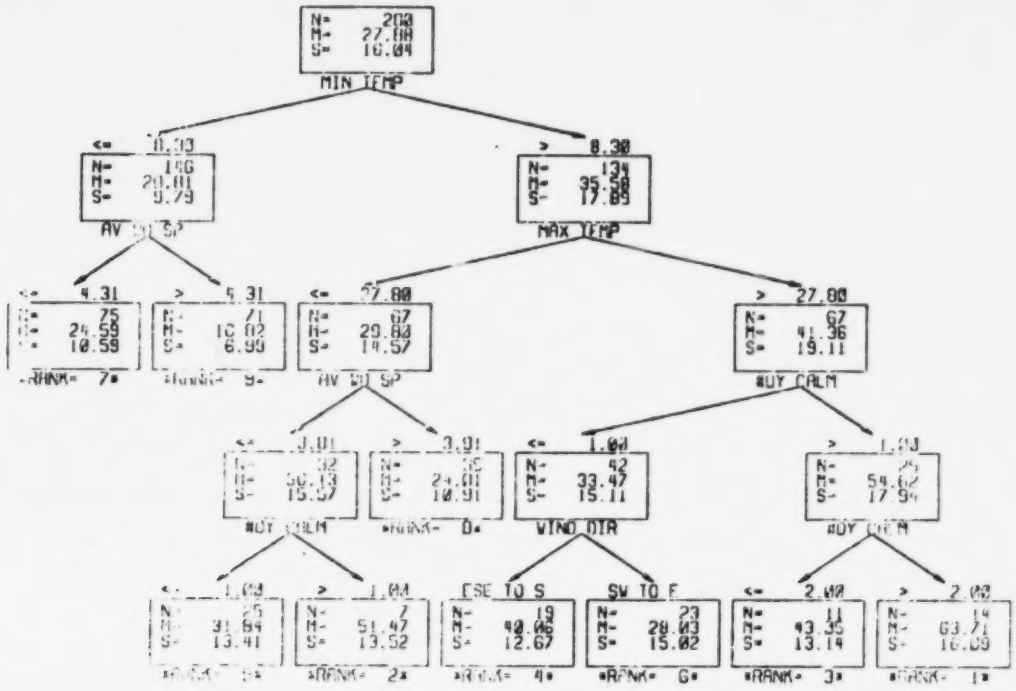

Figure I.7 Decision-tree relating FINE at station 103 to meteorological variables.

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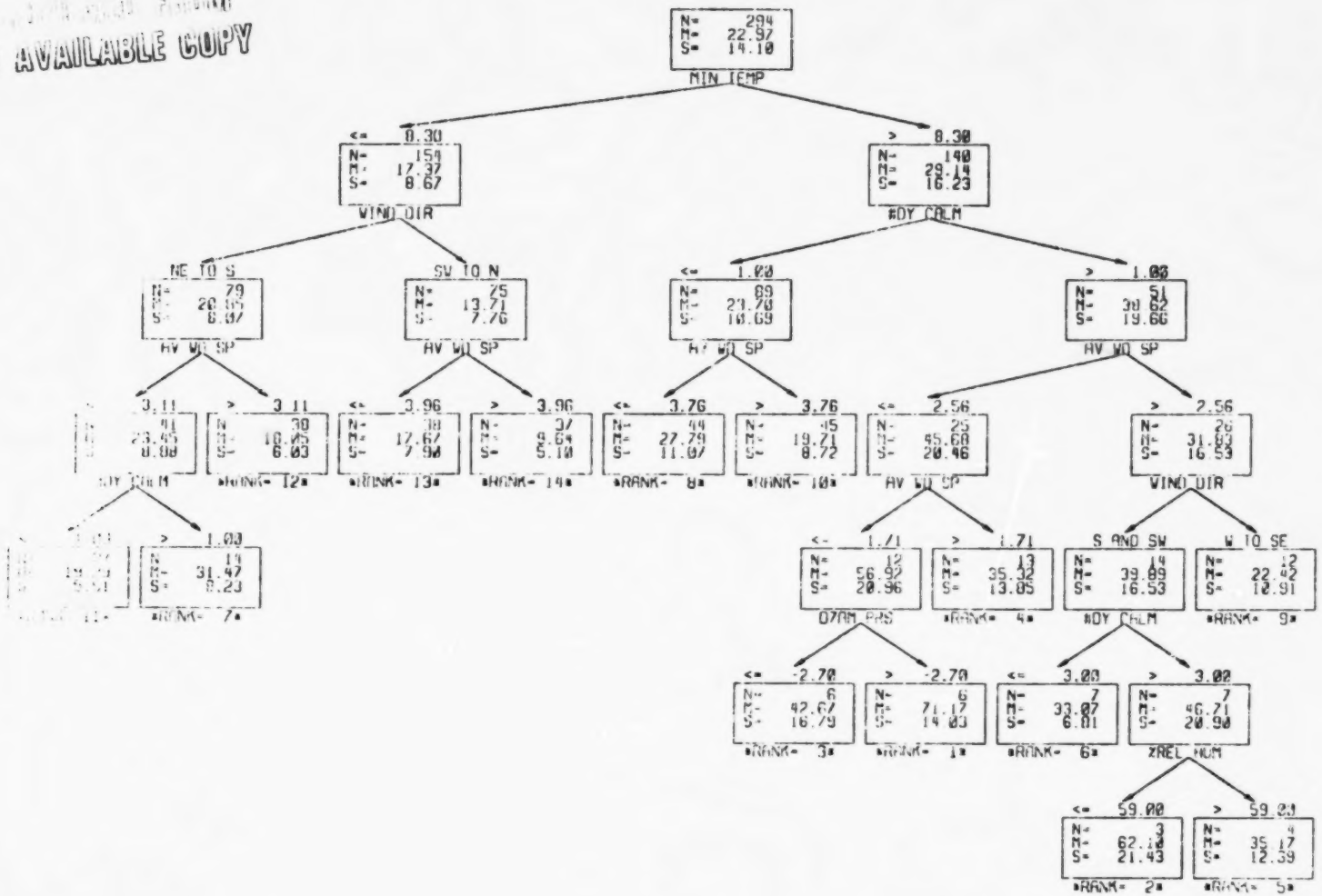

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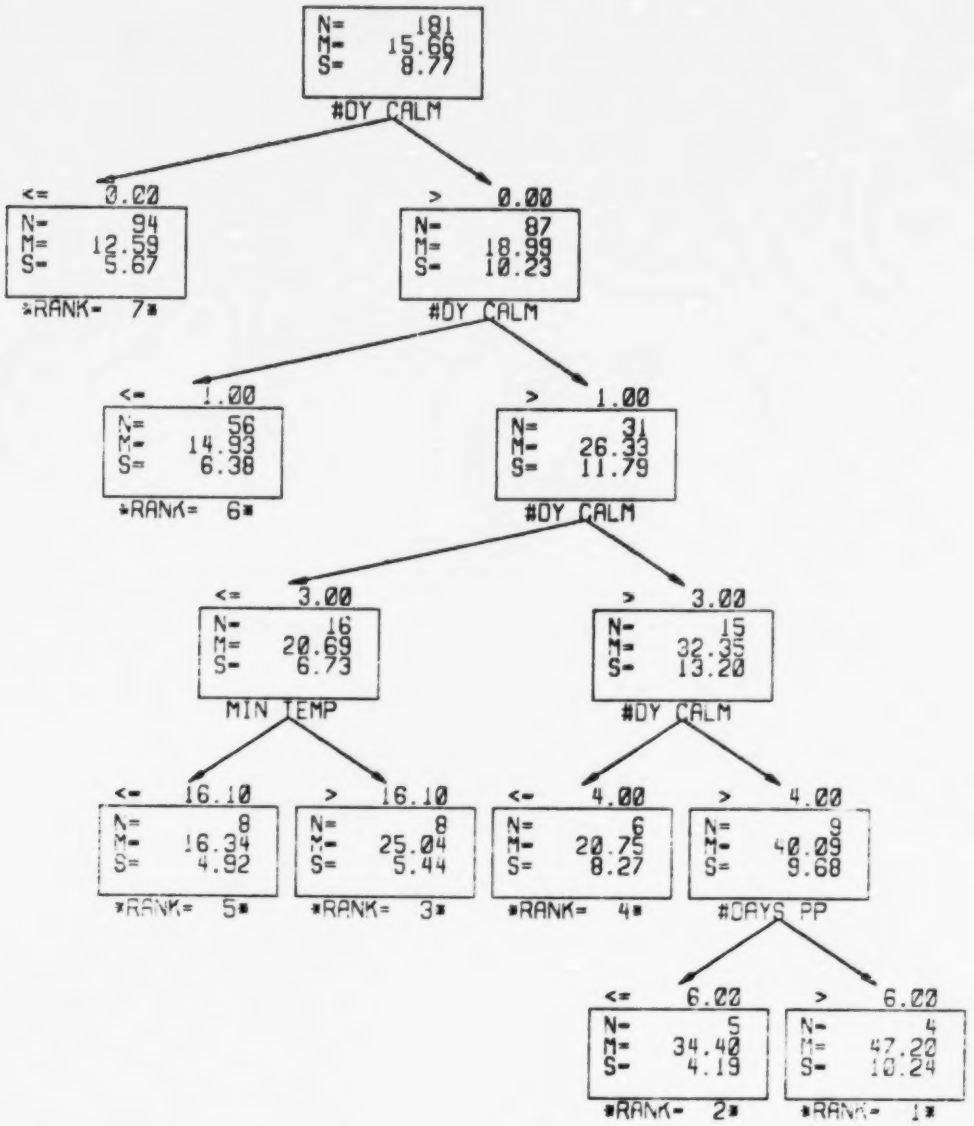

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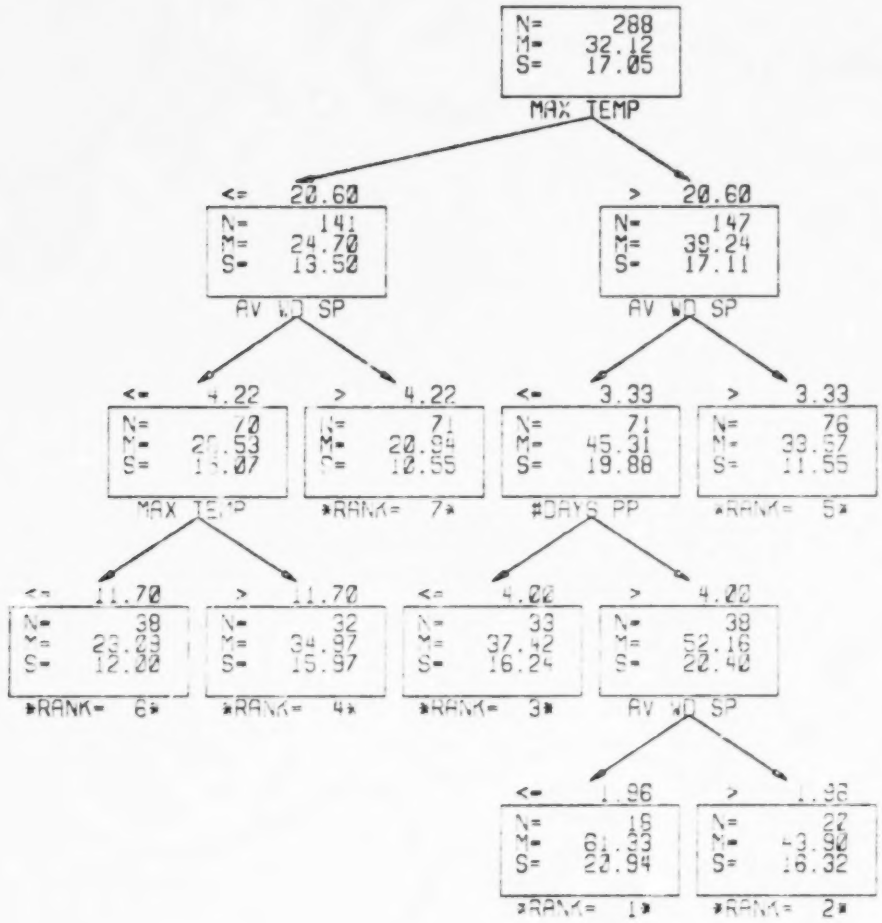

Figure I.10 Decision-tree relating COARSE at station 103 to meteorological variables.

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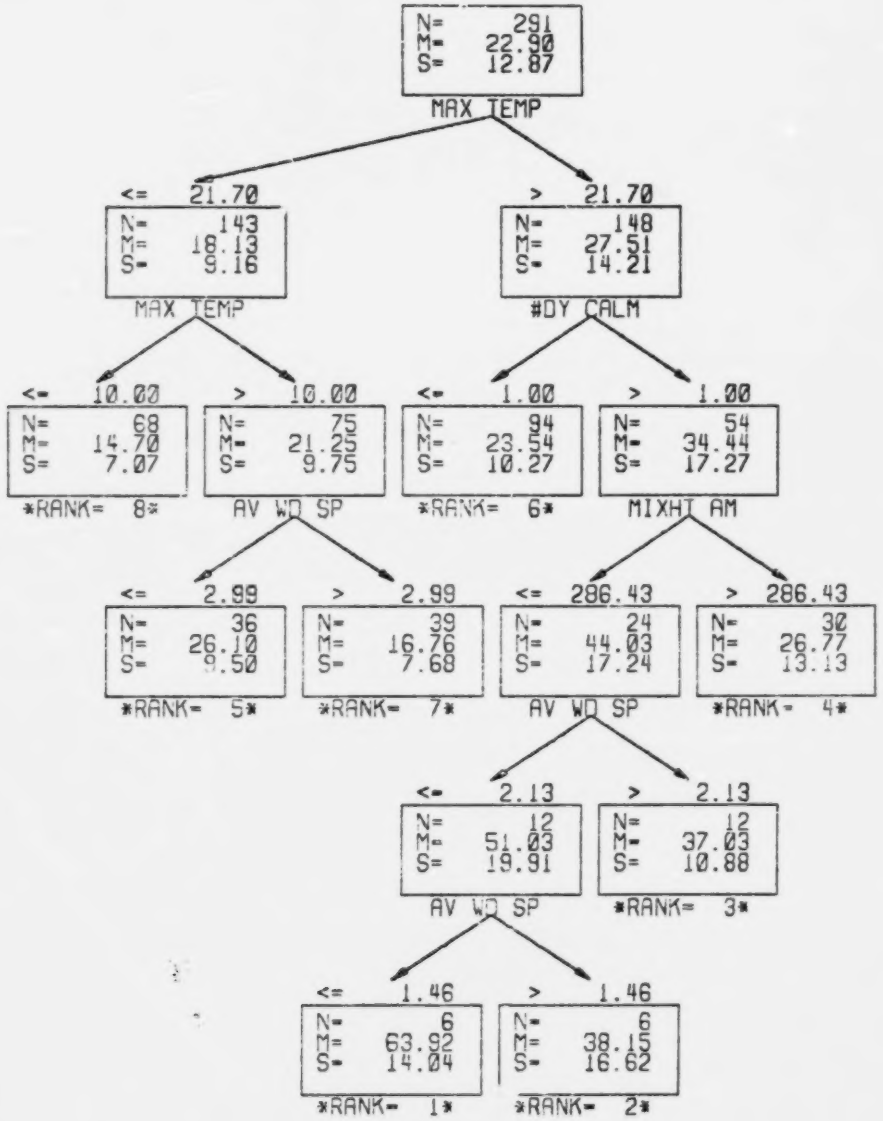

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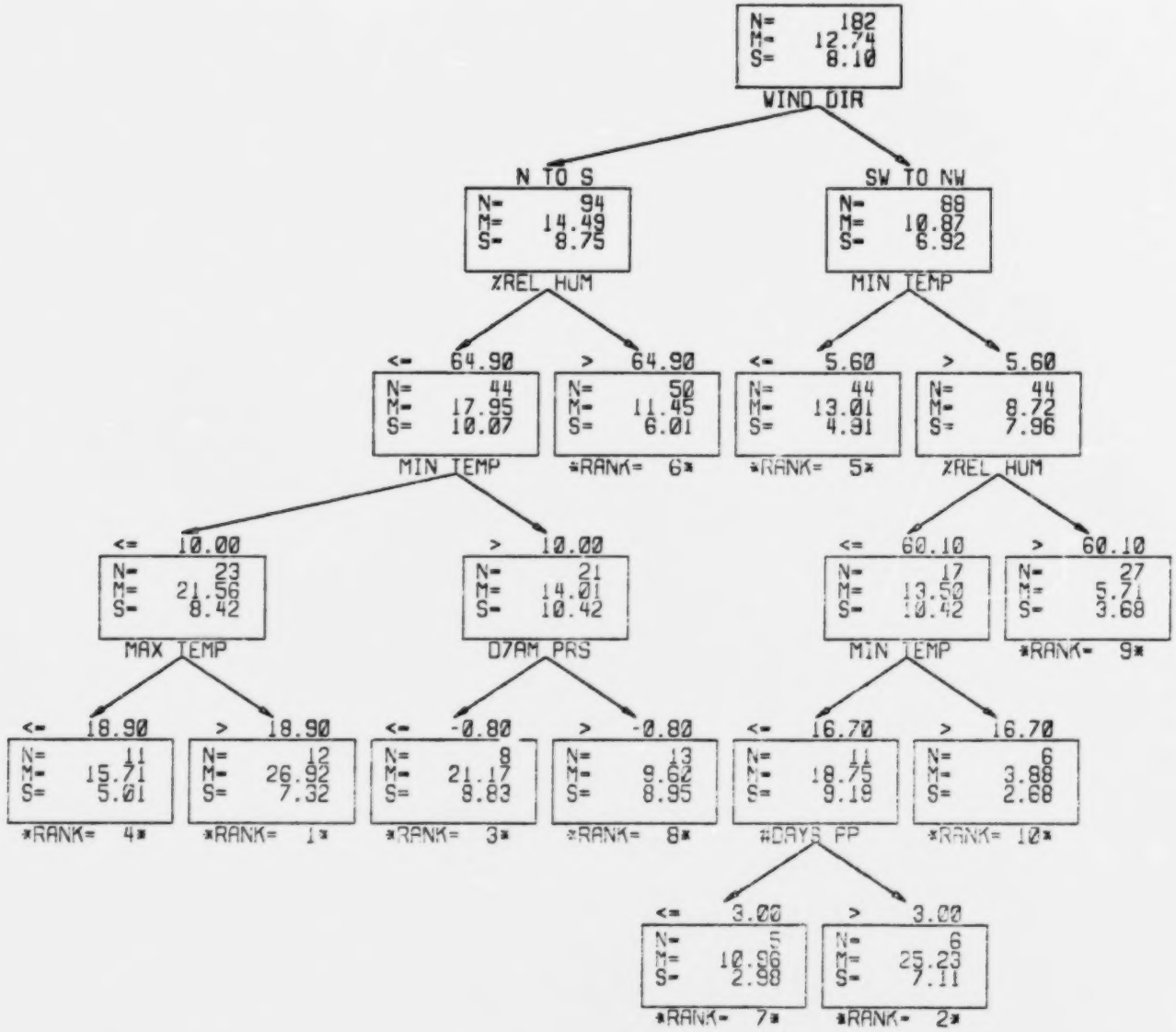

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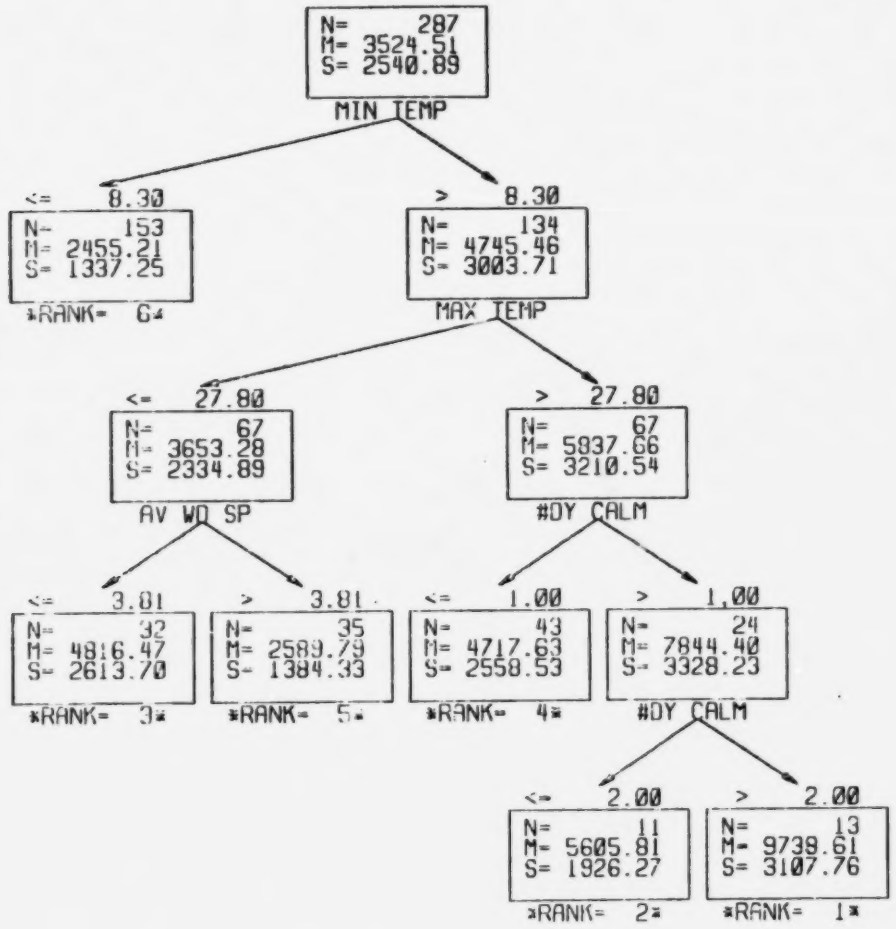

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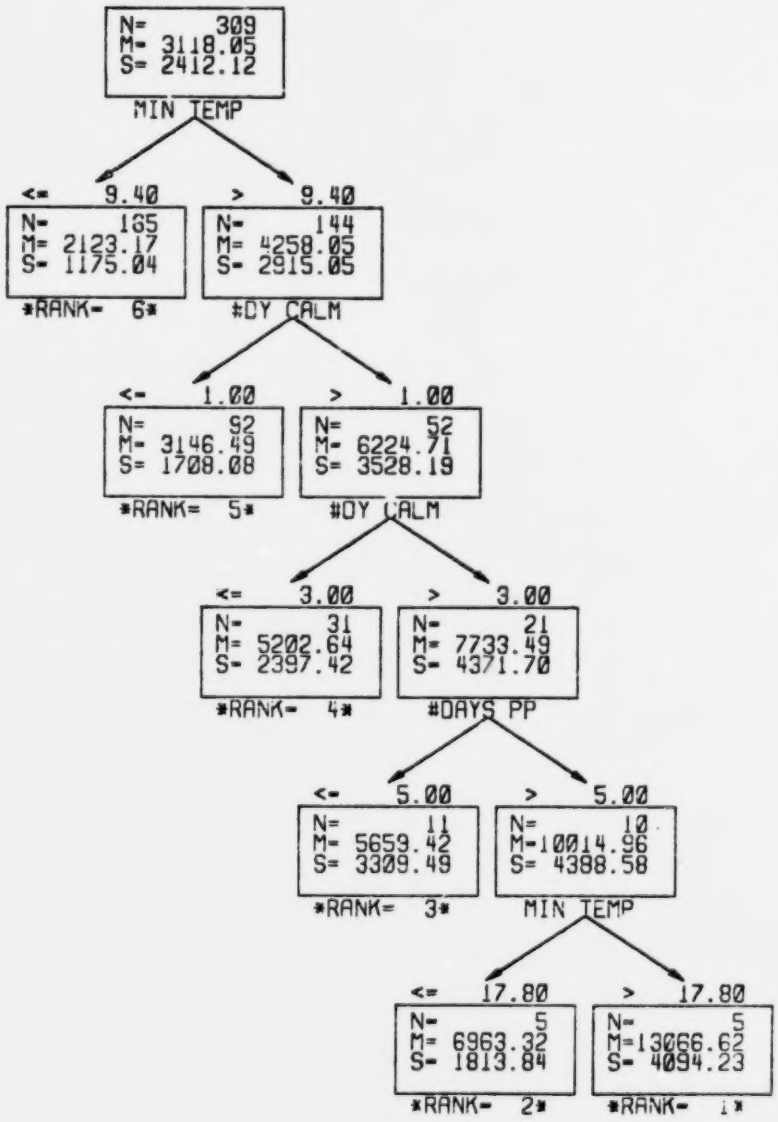

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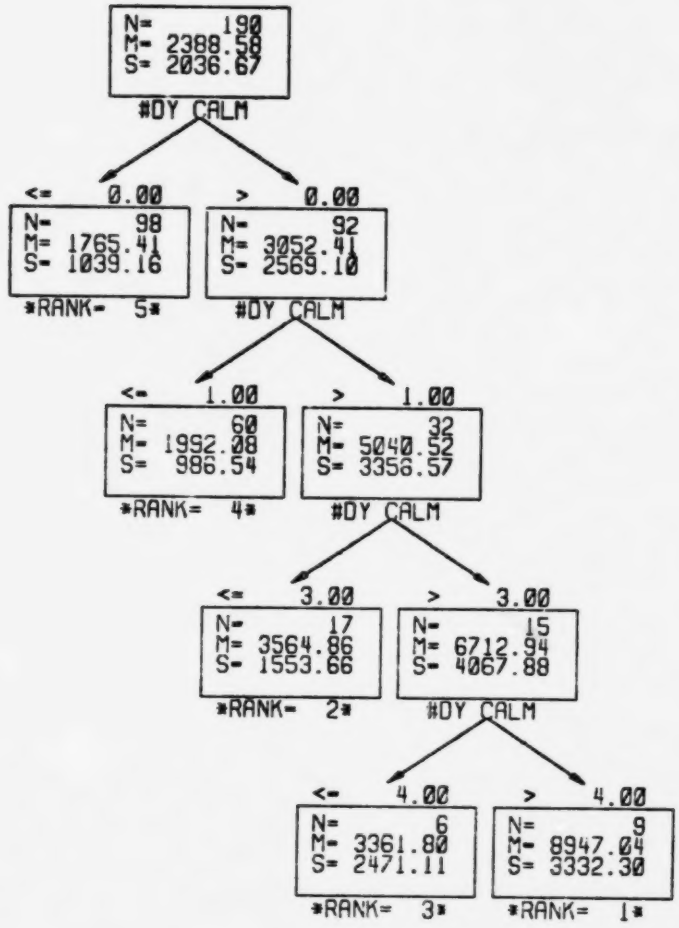

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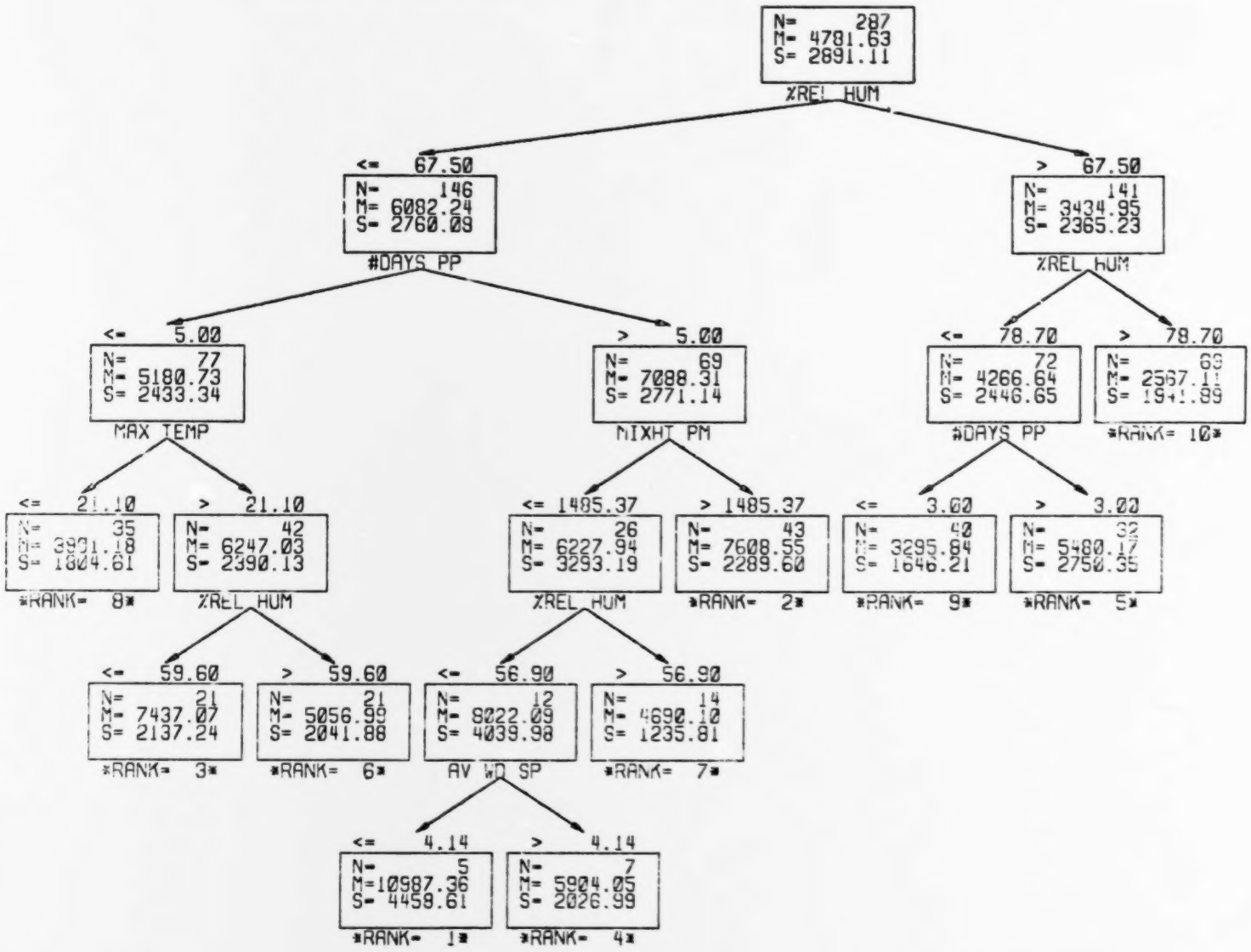

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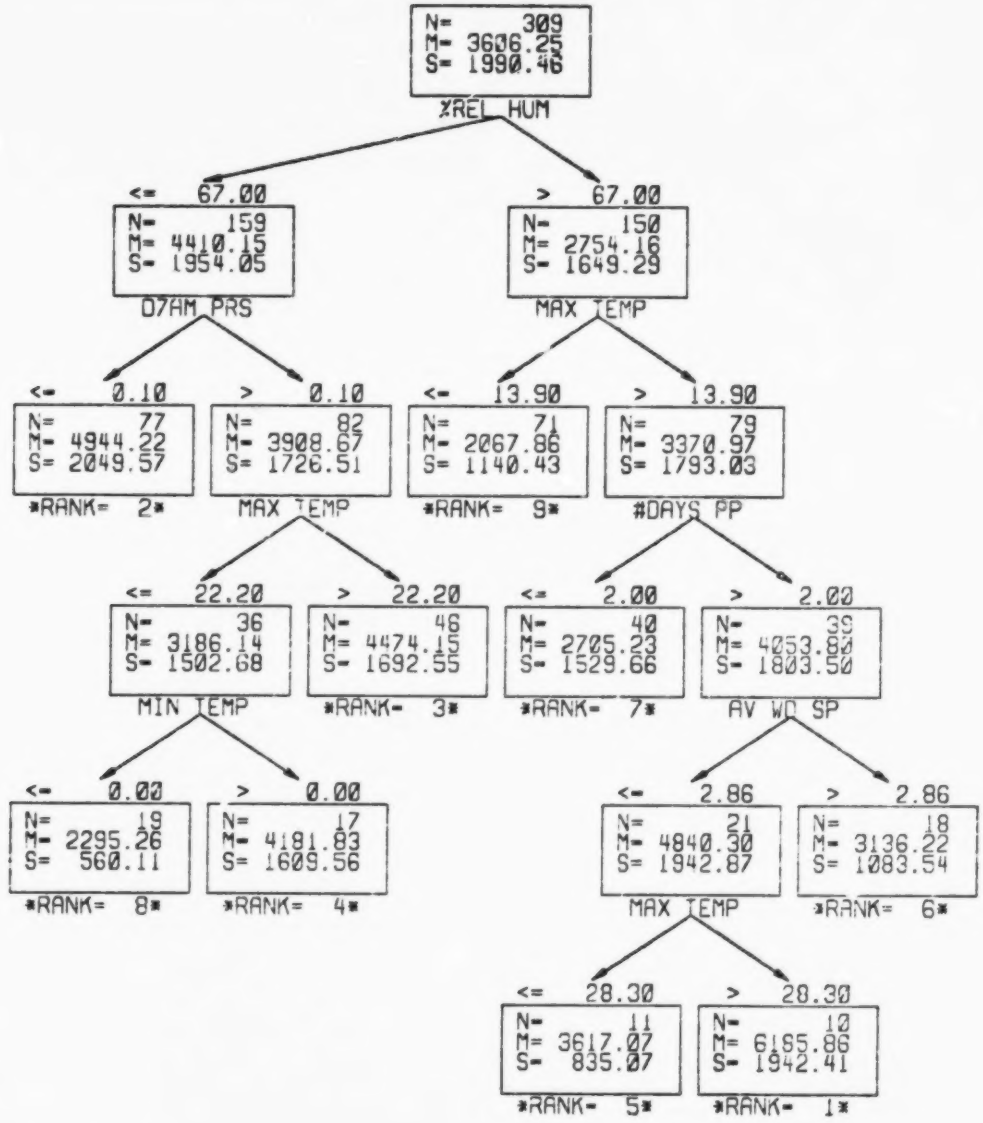

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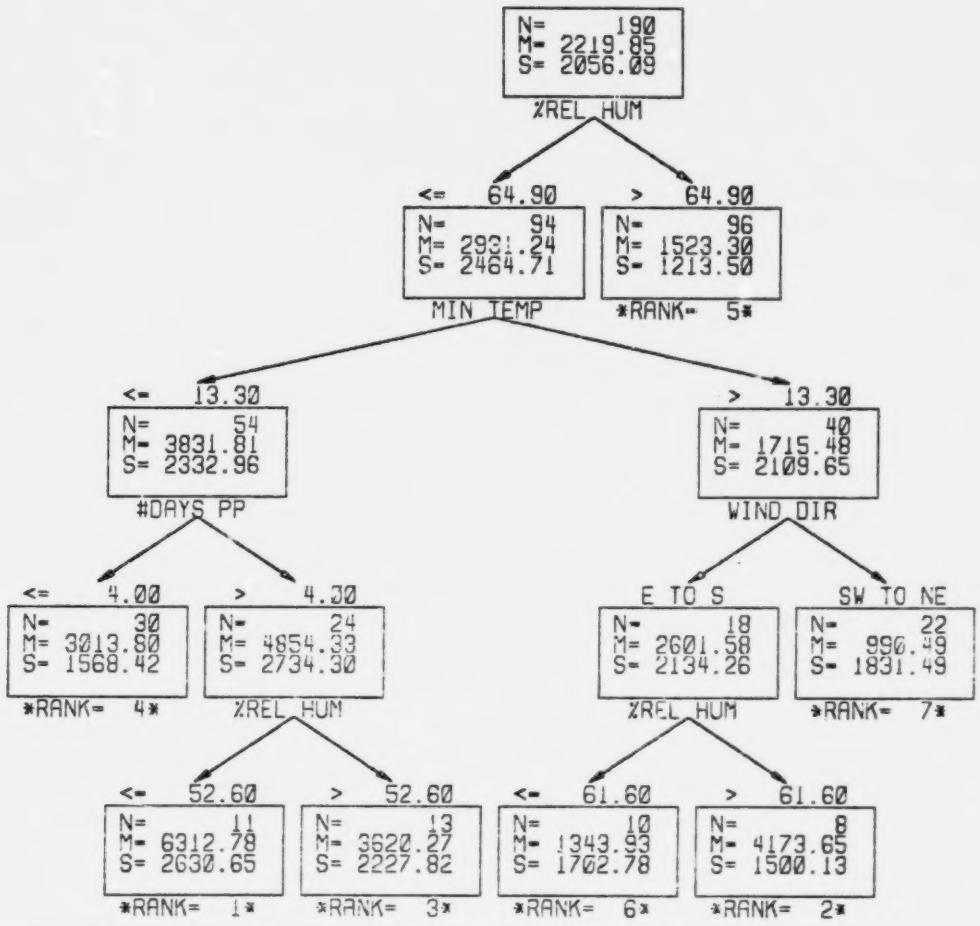

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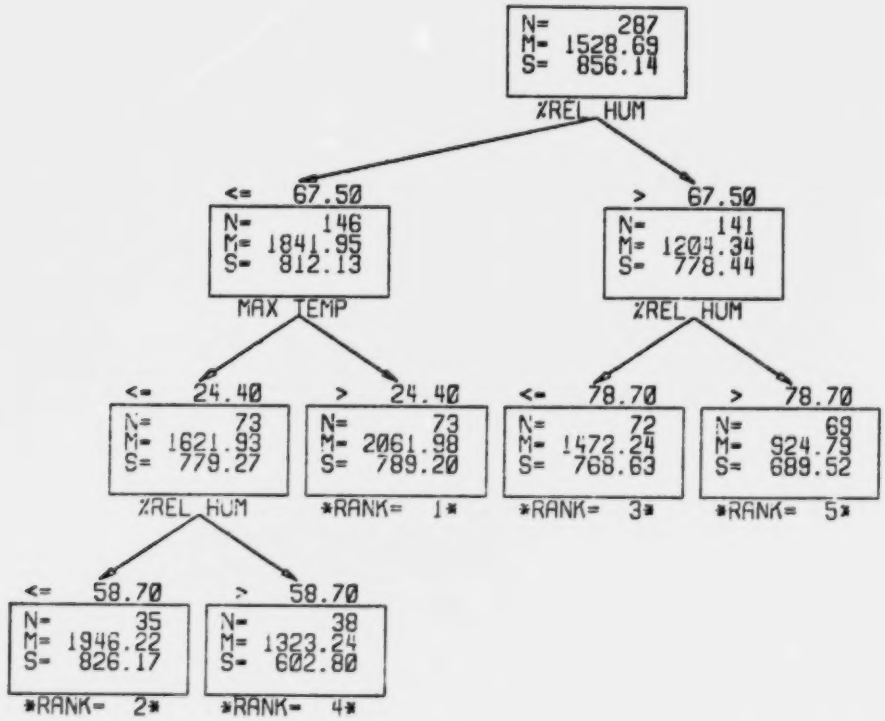

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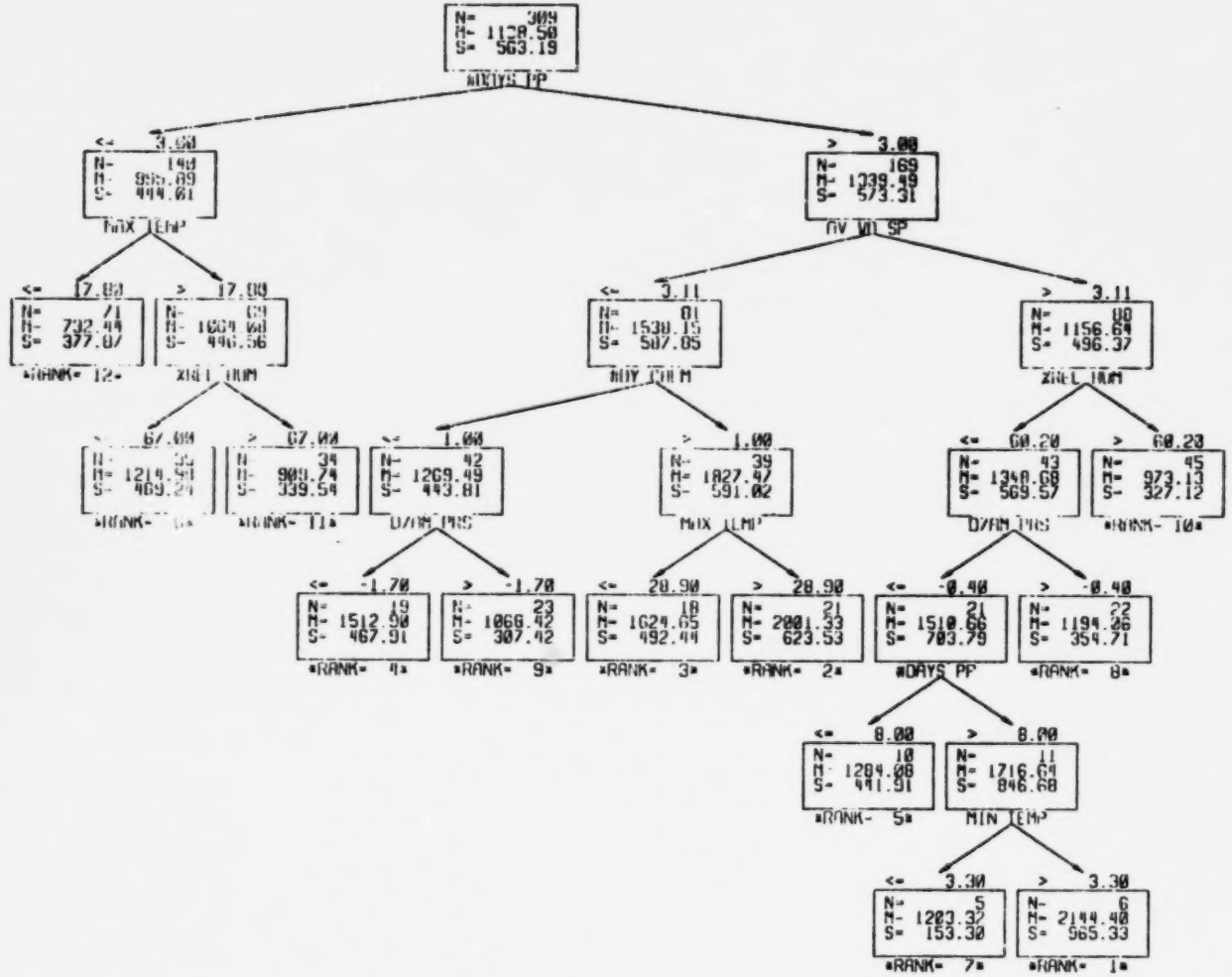
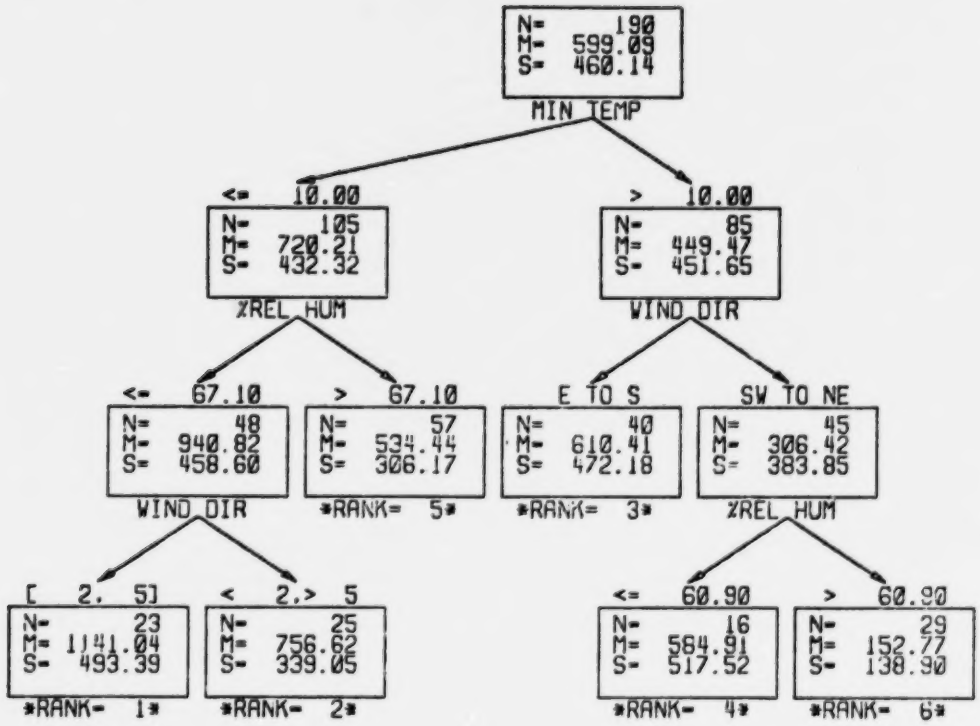


Figure I.20 Decision-tree relating aluminum at station 105 to meteorological variables.



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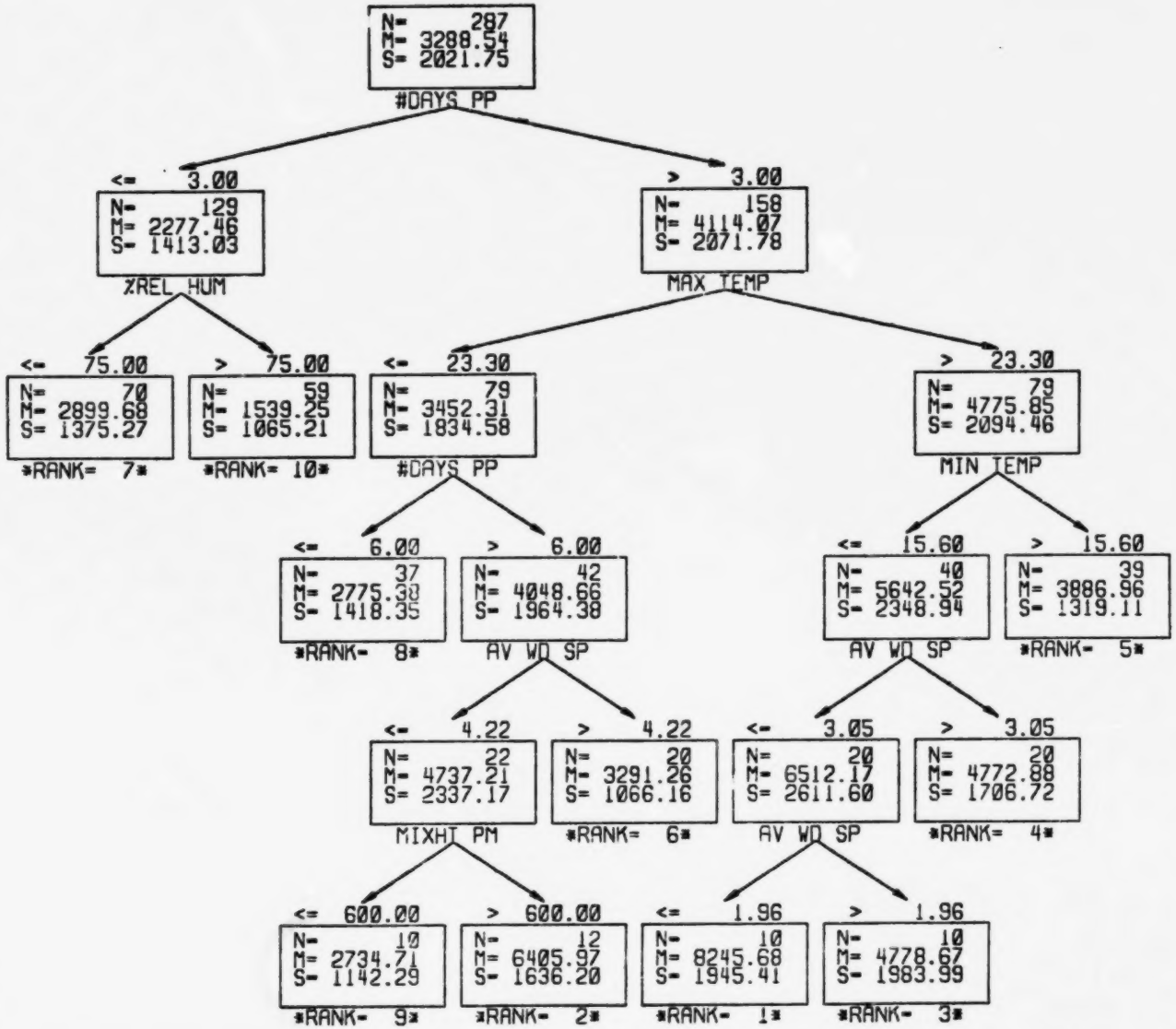

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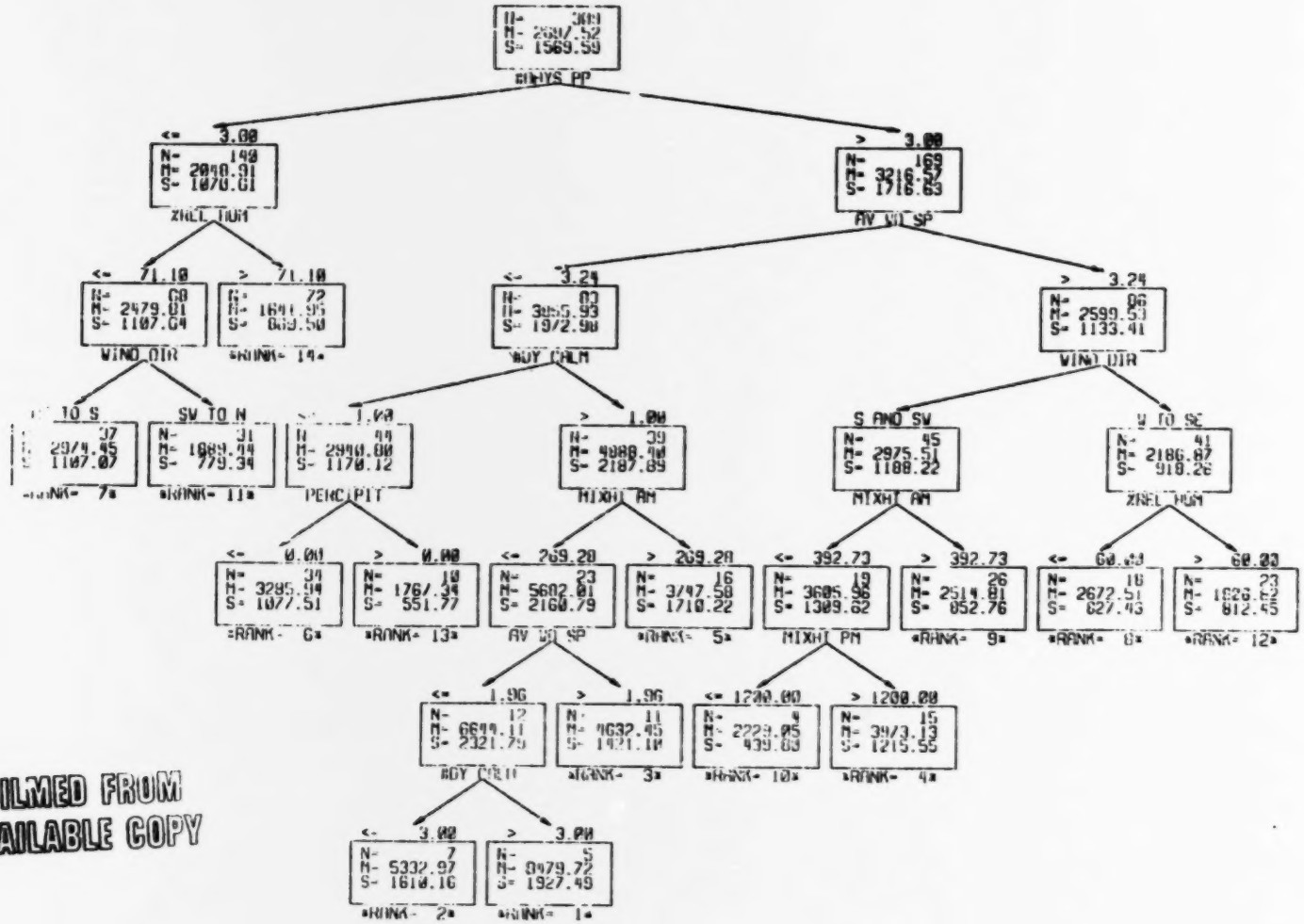

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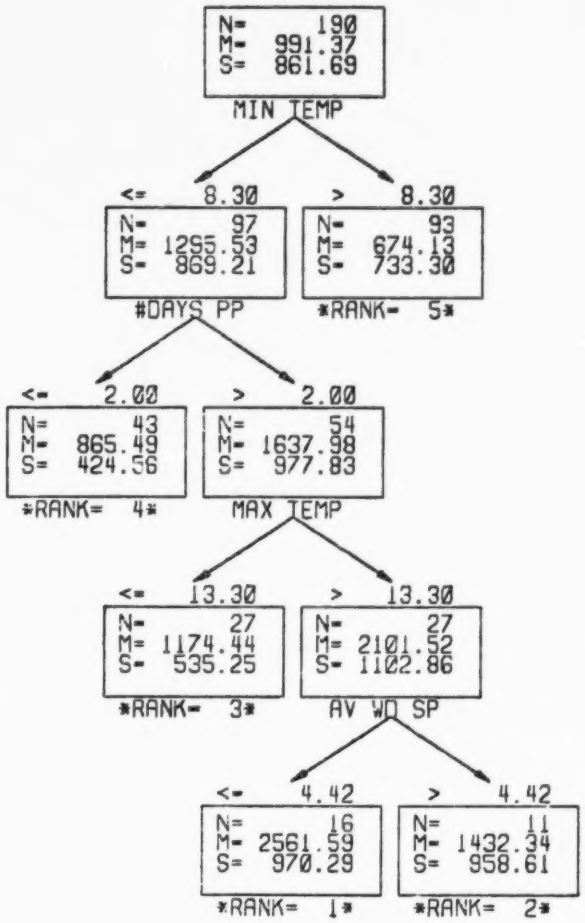
Figure I.23 Decision-tree relating calcium at station 105 to meteorological variables.



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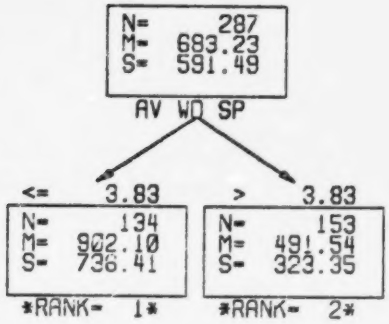

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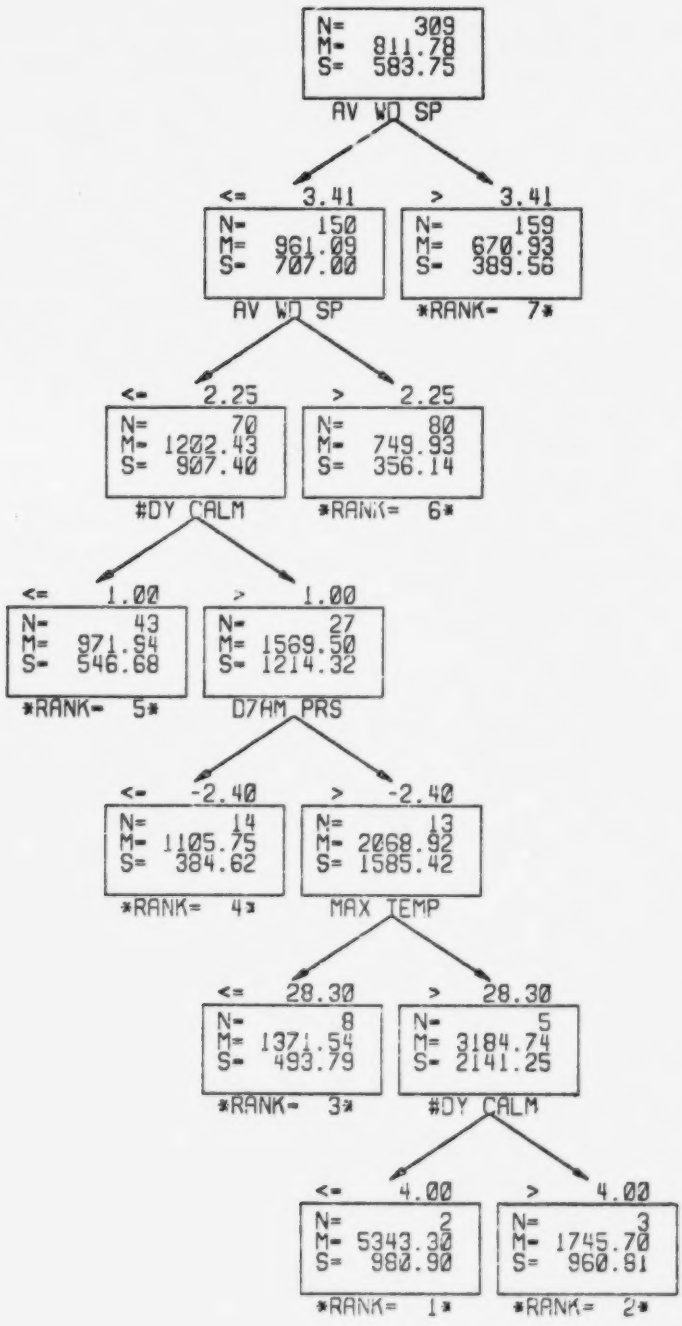

Figure I.26 Decision-tree relating lead at station 105 to meteorological variables.

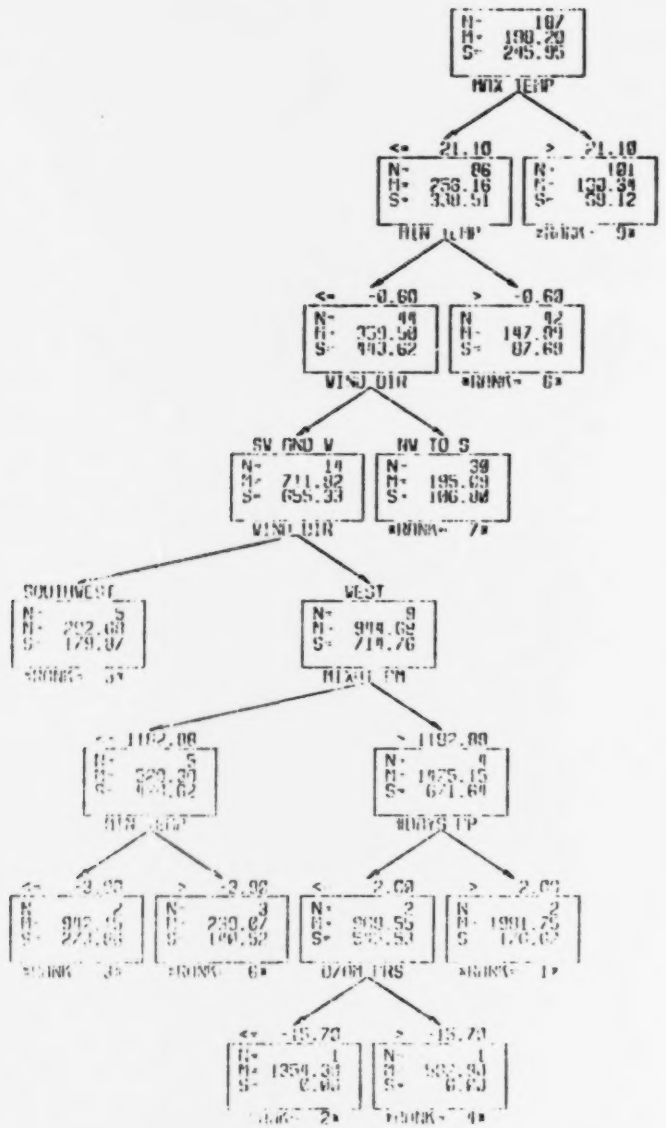

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Figure I.27 Decision-tree relating lead at station 124 to meteorological variables.

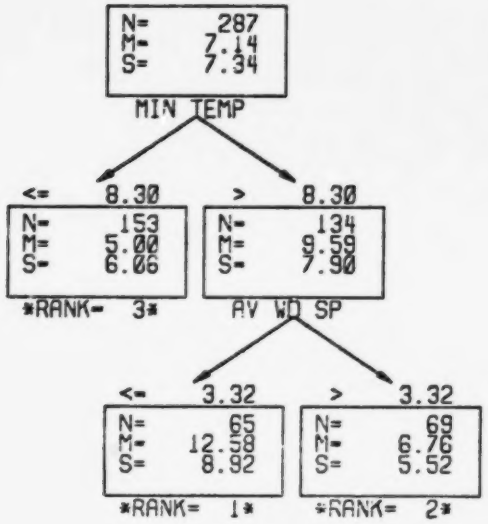

Figure I.28 Decision-tree relating vanadium at station 103 to meteorological variables.

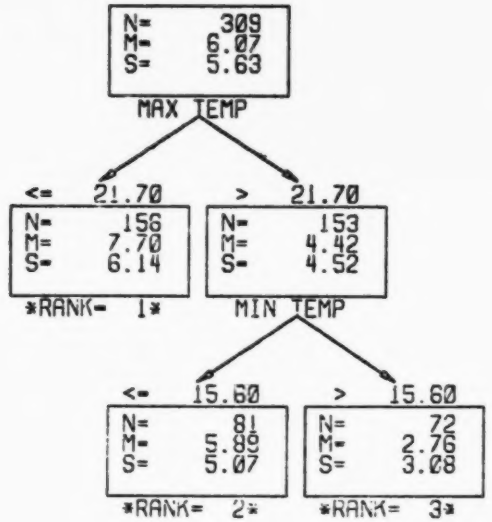

Figure I.29 Decision-tree relating vanadium at station 105 to meteorological variables.

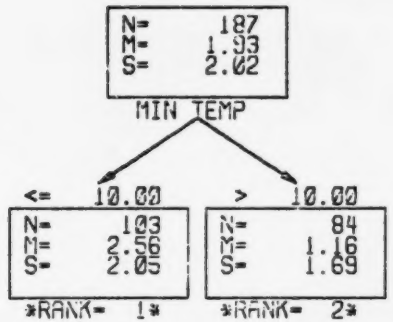

Figure I.30 Decision-tree relating vanadium at station 124 to meteorological variables.

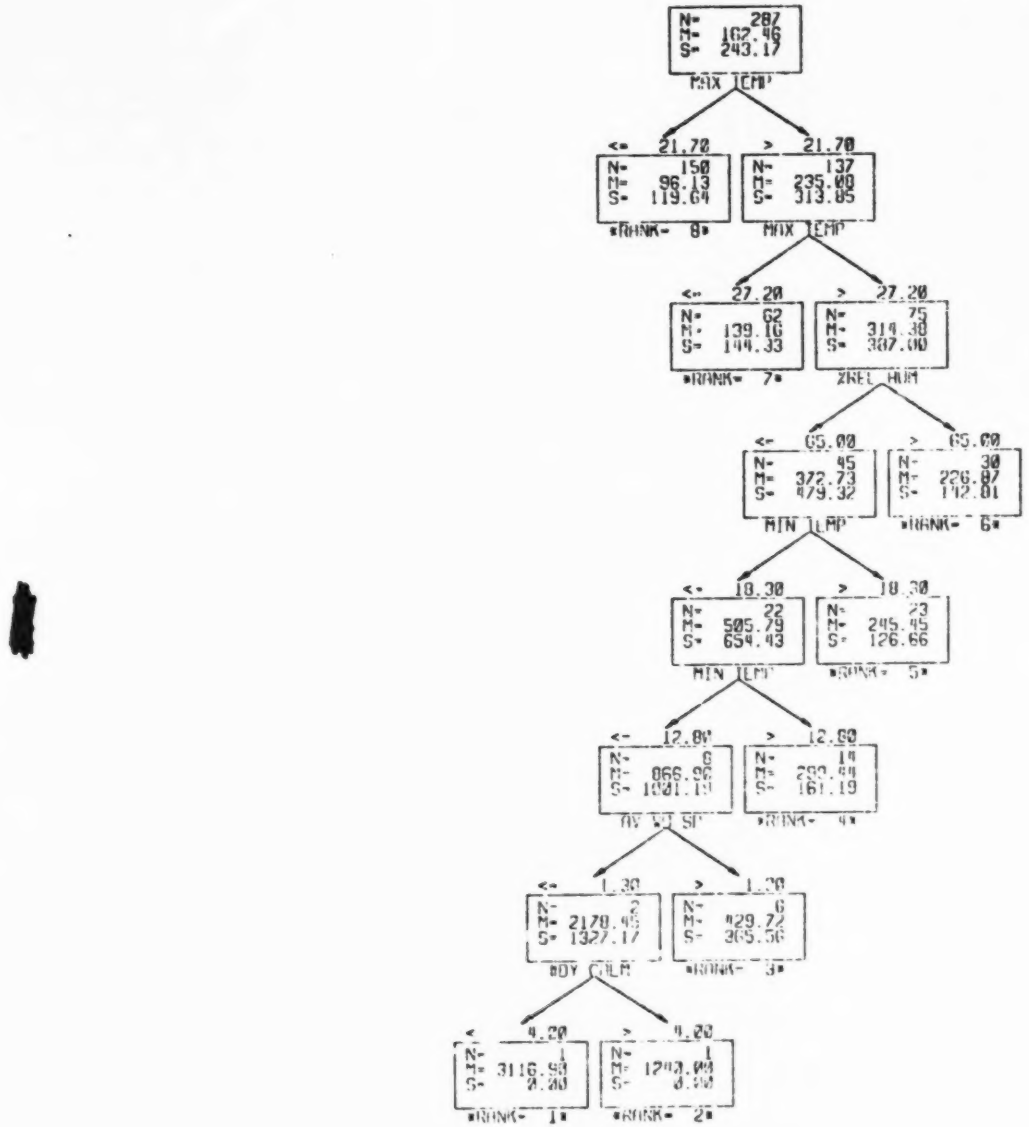

Figure I.31 Decision-tree relating titanium at station 103 to meteorological variables.

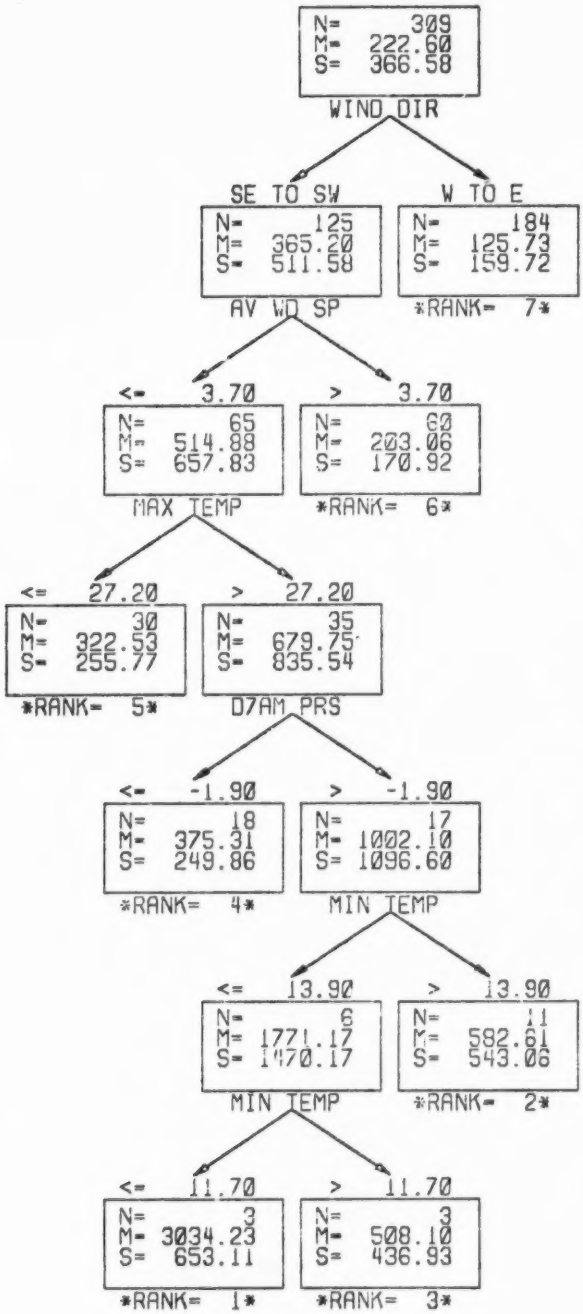

Figure I.32 Decision-tree relating titanium at station 105 to meteorological variables.

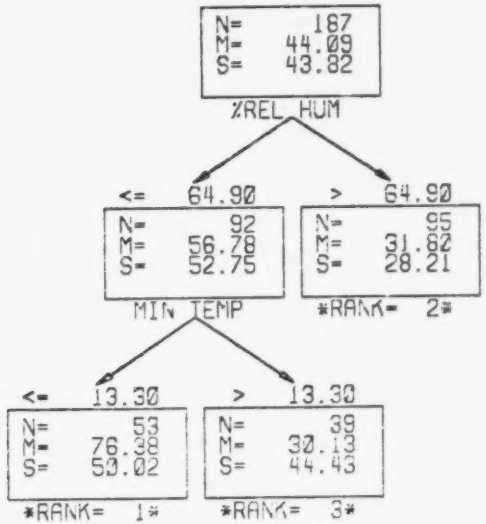

Figure I.33 Decision-tree relating titanium at station 124 to meteorological variables.

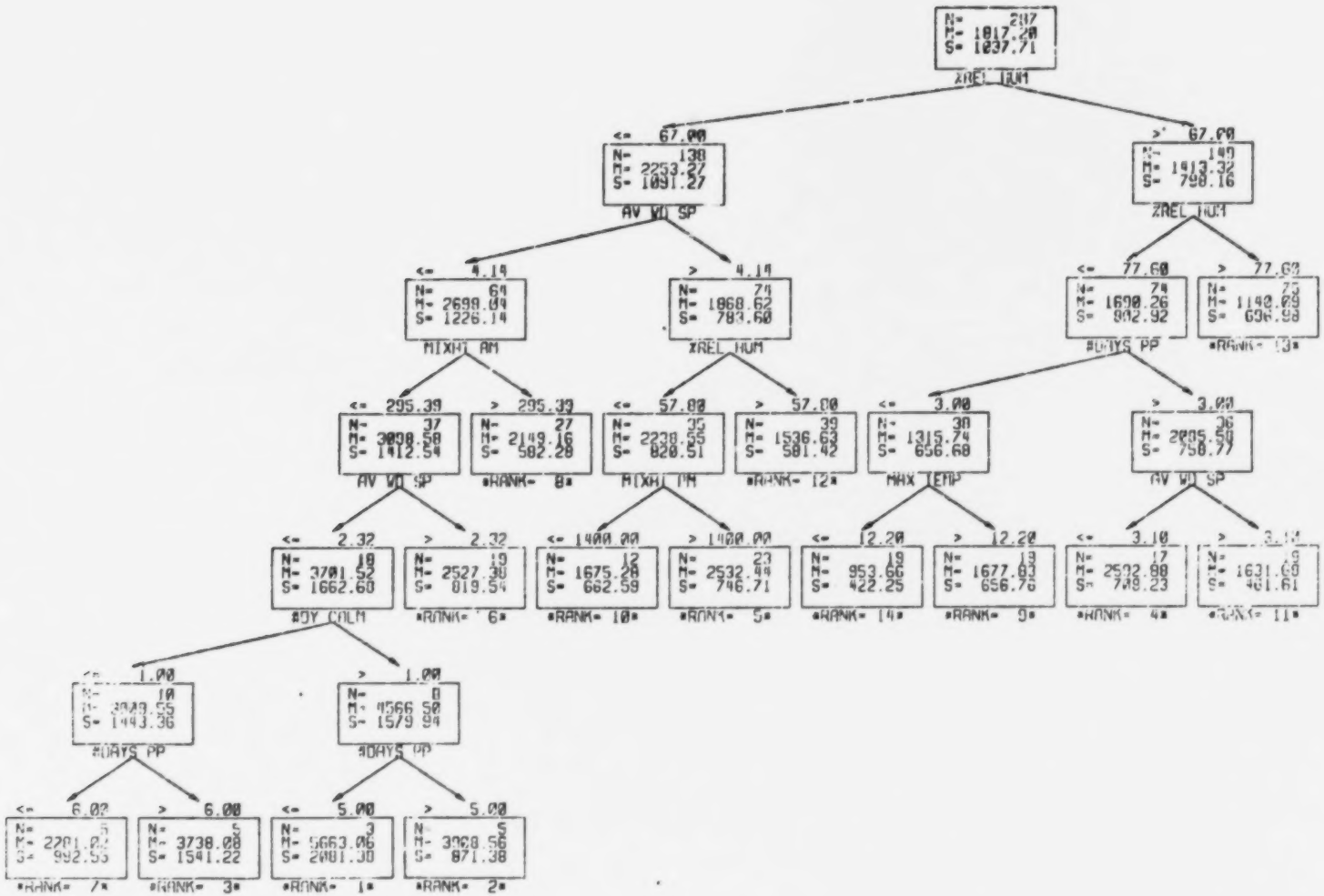

Figure I.34 Decision-tree relating iron at station 103 to meteorological variables.

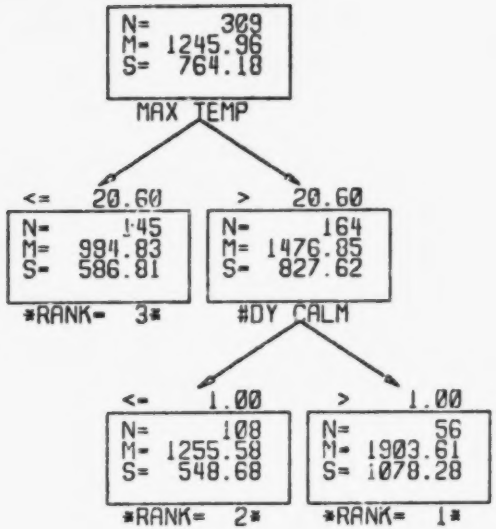

Figure I.35 Decision-tree relating iron at station 105 to meteorological variables.

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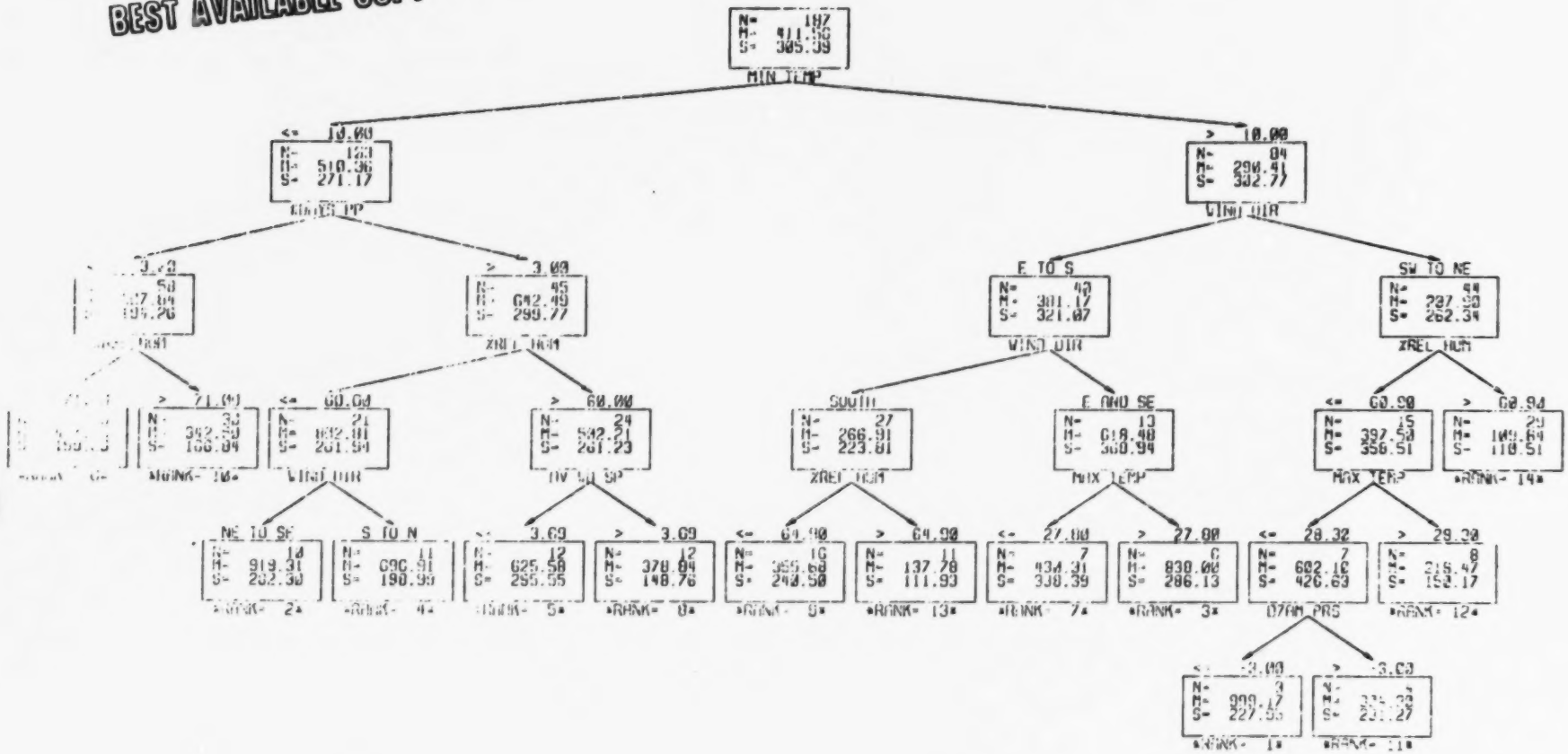

Figure I.36 Decision-tree relating iron at station 124 to meteorological variables.

APPENDIX J

DECISION-TREES RELATING IP/TSP RATIO TO ELEMENTAL CONCENTRATIONS AND METEOROLOGY

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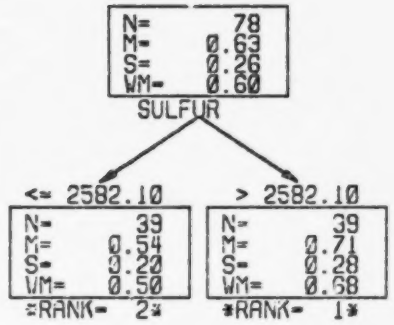

Figure J.1 Decision-tree analysis of IP/TSP ratio at site 103 versus elemental concentrations.

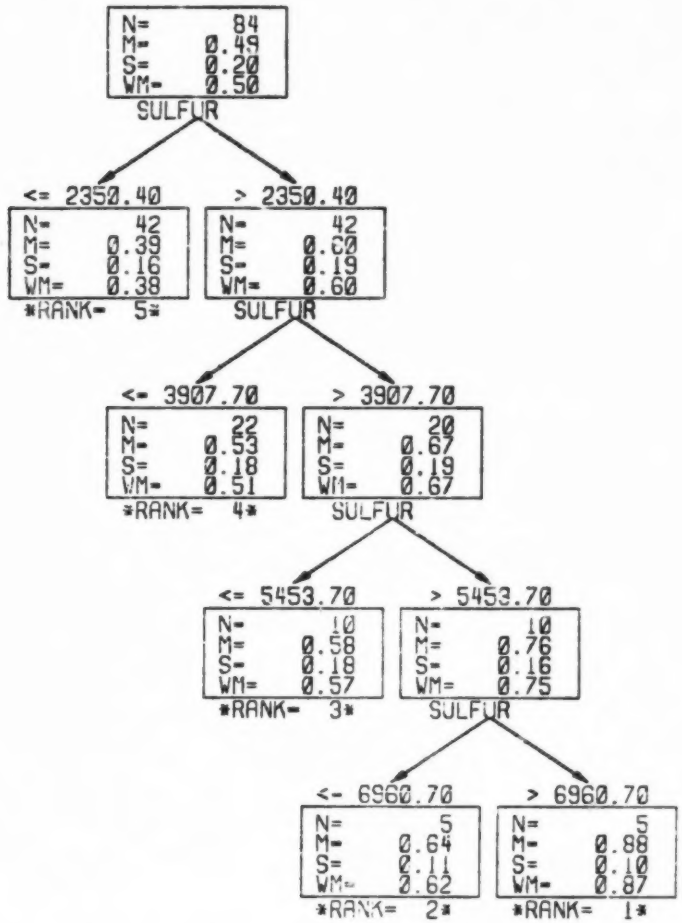

Figure J.2 Decision-tree analysis of IP/TSP ratio at site 105 versus elemental concentrations.

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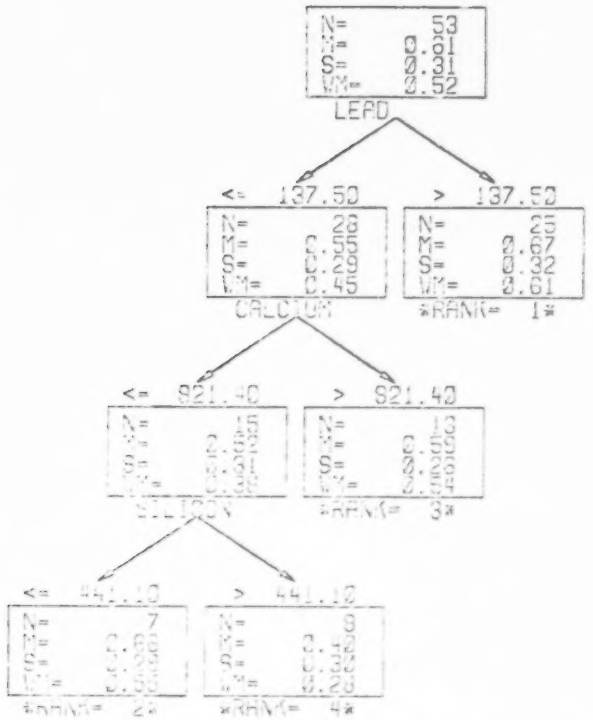

Figure J.3 Decision-tree analysis of IP/TSP ratio at site 124 versus elemental concentrations.

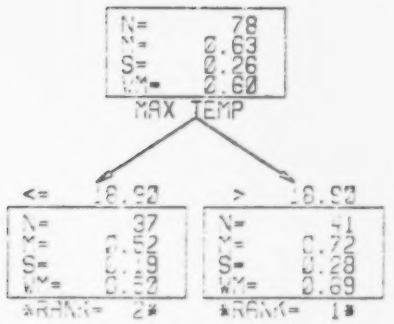

Figure J.4 Decision-tree analysis of IP/TSP ratio at site 103 versus meteorological parameters.

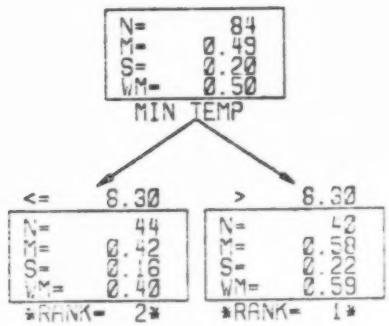

Figure J.5 Decision-tree analysis of IP/TSP ratio at site 105 versus meteorological parameters.

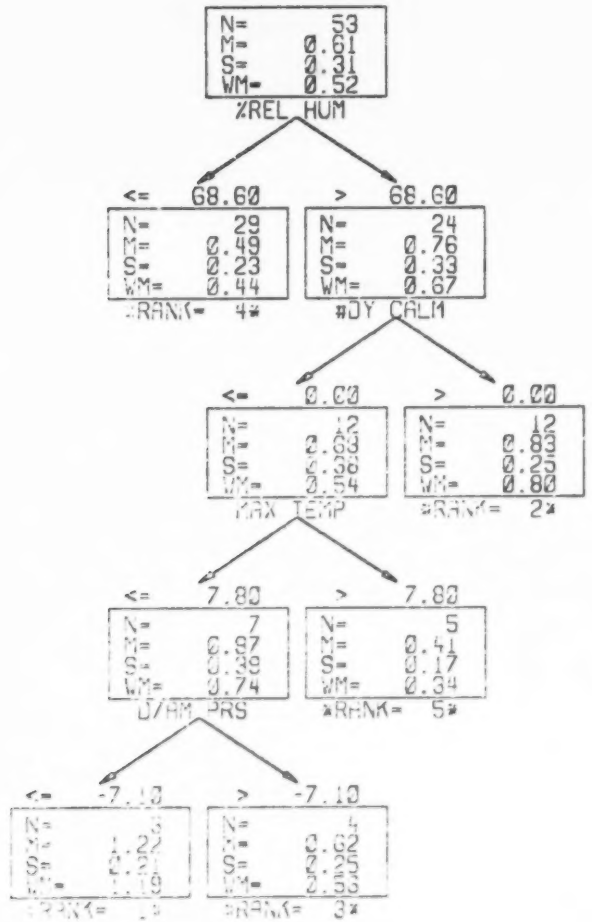

Figure J.6 Decision-tree analysis of IP/TSP ratio at site 124 versus meteorological parameters.

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16. ABSTRACT

In this report, a variety of data analysis methods are used to study the 1976 particulate data from the Regional Air Monitoring System (RAMS) in St. Louis. The aerosol data, collected at ten sites, include hi-vol measurements of total suspended particulate mass (TSP), as well as dichotomous sampler measurements of inhalable particulate mass (IP). IP is subdivided into fine particles (less than 2.4 μm in diameter) and coarse particles (between 2.4 and 20 μm in diameter). This study also includes dichotomous sampler data for eight trace elements (S, Si, Al, Ca, Pb, V, Ti, and Fe) and data for 11 meteorological parameters.

The analyses characterize the spatial pattern of particulate matter in and near St. Louis; background aerosol concentrations and particulate transport; temporal patterns of particulate concentrations, the dependence of aerosol concentrations on meteorology; and the relationship between hi-vol data and dichotomous data.

This document contains the technical bases for Volume I, Final Report (EPA-450/4-80-006a).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
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